

Keeping Food Healthy – Student Instructions



Conduct an Experiment with Fruits & Vegetables

Safety First

1. Do NOT open the Petri dishes once you have taped them closed. You could be culturing dangerous **bacteria**.
2. Proper disposal is critical for both safety and sanitation. Follow the guidelines at the end of the experiment to properly dispose of your Petri dishes.

Tools of the Trade

- Nutrient Agar Petri dishes (see link below for ordering information)
- 5 unwashed fresh fruit/vegetable samples
- 10 cotton swabs
- Permanent marker
- Clear tape
- ½ cup of apple cider vinegar (optional)
- 2 cups of water
- Spoon
- 1-gallon size resealable bag
- Large bowl
- 1 cup of bleach
- Plastic gloves
- 5 Paper Towels
- Knife

Ordering information for the Nutrient Agar Petri dishes:

<https://www.homesciencetools.com/product/nutrient-agar-prepared-media-plates-5-pack/>

*Suggested fruits/vegetables: strawberries, lettuce, tomatoes, blackberries, cucumbers, spinach, sprouts, kale, peaches

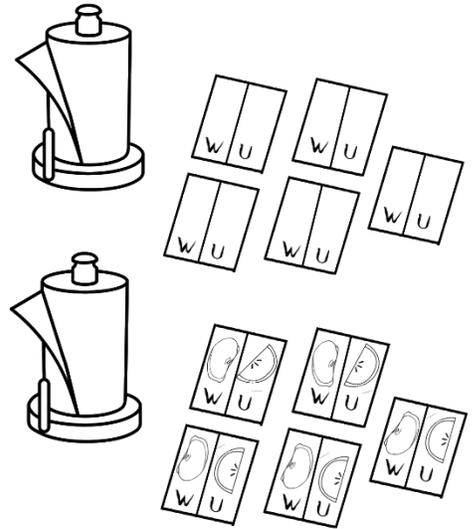
Prepare the Petri Dishes & Cleansing Solution

1. Wash your hands with soap and water.
2. Remove the Petri dishes from the box and place them on a clean counter.
3. Turn each dish over. Use a permanent marker to draw a line down the middle of each dish. On one side of the line write “U” for unwashed. On the other side of the line, write “W” for washed.
4. Turn the dishes over and write the name of the fruit/vegetable on the top.
5. You now have a choice to make. You will decide which cleansing solution you will use to wash your fruit/veggies. Your choices are plain water, or a mixture of apple cider vinegar & water.
6. If you choose plain water, simply fill the large bowl with water. If you decide to use an apple cider vinegar/water mix, add both to the large bowl and gently stir with the spoon.



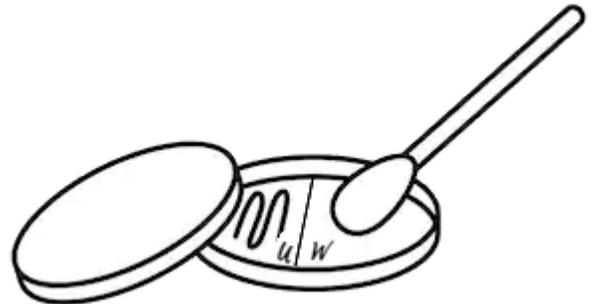
Prepare the Fruits/Vegetables

1. Place 5 paper towels on the table. Draw a line down the middle of each paper towel. On one side write "W" and on the other side of the line write "U."
2. Cut the fruit/vegetables into many pieces.
3. Place a few pieces of unwashed fruit from each fruit/vegetable onto the five paper towels on the "U" side.
4. Place the remainder of the fruit/vegetable pieces into your cleansing solution. Soak the pieces for 5 minutes, gently rub each piece with your hands, and rinse the samples. Place each sample on the paper towel with the unwashed piece. Make sure to put the washed sample on the side marked "W."



Conduct the Experiment with the Unwashed and Washed Samples

1. Use a clean cotton swab for each sample.
2. Wet each cotton swab with water.
3. Rub each piece of unwashed fruit/vegetable with the wet cotton swab. Be sure to swirl the cotton swab with your fingers as you brush it against the fruit/vegetable to make sure you have fully covered the swab.
4. Open the Petri dish for the fruit/vegetable you just swabbed and draw a wavy line down the side labeled "U."
5. Discard the cotton swab. Get a clean, wet swab for each sample.
6. Repeat the process for each unwashed sample and then with the washed pieces of fruits/vegetables.
7. Using clear tape, seal each Petri dish carefully.
8. Find a dark, cool place in your home for the Petri dishes to remain for 1 week. Make sure the spot is safe from family members and pets. Often condensation will form in the Petri dish. To make sure water doesn't drip on the agar, turn each Petri dish upside down.



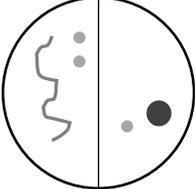
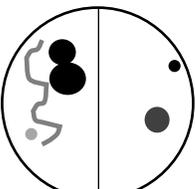
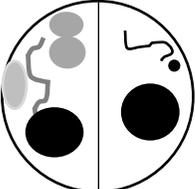
Implement the Plan: Data Collection

You will conduct data collection for one week.

- Take a picture of each dish each day and use the chart on your student handout (example below) to document changes
- Use a different data collection table for each of the fruit/vegetable samples. Try to be very specific with your description and your drawing, use your daily pictures to help with the details. This will allow you to truly see changes each day.

SAMPLE DATA COLLECTION

Romaine Lettuce

Day	Packaging	Unwashed Observations	Washed Observations	Draw your Observations
1	Loose Individually Wrapped Bagged w/ Other Produce	There is a thin light green line forming where I swabbed. I also see two small black dots towards the top right of the line.	I don't see anything where I swabbed yesterday. Two small black dots area forming on the bottom of the dish.	U W 
2	Loose Individually Wrapped Bagged w/ Other Produce	The green line is darker and there is a green dot towards the bottom. The two black dots are much larger.	There are now 2 black dots on the dish. The two black dots remain the same size from yesterday.	U W 
3	Loose Individually Wrapped Bagged w/ Other Produce	The black dots are much larger. A new oval shaped growth appeared close to the edge of the Petri dish.	One of the black dots doubled in size. Also, a wavy purple line has formed at the top of the dish.	U W 

Dispose of Your Petri Dishes

1. After 1 week of observations, place all the Petri dishes into the gallon resealable bag. With a parent's assistance, add 1 cup of bleach to the bag and seal it: **Do NOT open the resealable bag once it is sealed.**
2. Throw the entire sealed bag of Petri dishes into the trash.



Activity 2: Create a Public Service Announcement (PSA)

Topic: Four Steps to Food Safety: Clean, Separate, Cook, Chill

A Public Service Announcement (PSA) is an engaging way to tell others about an important topic. Usually PSA's are created to encourage positive change in society. Perhaps you've seen a PSA about the dangers of smoking, or the need for sunscreen to prevent skin cancer. For this PSA, you will follow these steps to create a persuasive case for cleaning, separating cooking, and chilling food.

Steps to Create a Powerful PSA

1. Consider your audience. Are you trying to inform your parents, teachers, friends? Narrow down your audience to 1-2 groups.
2. Research the topic: **Four Steps to Food Safety** (see recommended links below)
3. Write down 5-6 suggestions that you think are important for your audience to know.
4. Grab your audience's attention with a short and catchy slogan. For example, the United States Forest Service coined the phrase, "Give a hoot. Don't pollute!"
5. Create a script. Try to keep it under 30 seconds, like the length of a commercial. Remember to be concise with your information. Don't overwhelm your audience.
6. Be sure to watch what you filmed and make any necessary changes before you show it to others. It's okay to ask for help with filming your PSA. You want this to be your personal!



Recommended videos

Example PSAs: <https://www.youtube.com/watch?v=jSGmm9NtcQg>

How to Make a PSA: <https://www.youtube.com/watch?v=eywBa0xfQFw>



Share Your PSA

Sharing your results is not only interesting to others, it is also extremely informative.

1. Challenge yourself to communicate your procedure and results to at least 5 other people. Encourage them to practice food safety habits
2. Share what you've learned with the CDC Museum Education Department using the email address education@cdc.gov.
3. With parental permission, upload your PSA to Facebook and/or Twitter and tag CDC. For Facebook use @CDC. For Twitter use @CDCgov.