



Lesson 2.4

Stop the Spread

REQUIRES ADVANCED PREPARATION

Estimated time: Two 50 min periods

Instructional overview

Lesson 2.4 will help students demonstrate their ability to prepare foods using proper food safety practices, useful in both the home and food service industry. Students will learn the Fight BAC! 4 Cs of safe food handling and prepare salsa using these principles.

Instructional objective

1. Demonstrate how to minimize food safety hazards through proper handling, preparation, and storage techniques.
2. Define the 4 Cs of safe food handling.
3. Prepare fresh salsa from a recipe.

Assessment

Students will complete Investigation Activity 2.4, where they will be assessed on group participation as well as their individual completion of the lesson activity. To prepare a product that is safe to consume, students must follow proper food handling and preparation techniques. Students will complete the Investigation Activity handout to score at least 70% on the grading rubric.

Relevant learning standards - NSECS-F, NSECS-1, NSECS-5, NSECS-7

Equipment, supplies, and materials

1. PowerPoint Presentation – PPT 2.4.
2. Case Notes 2.4 - one per student or use ppt template.
3. Investigation Activity 2.4 - one per student or use ppt template.
4. Glo Germ™ liquid and/or powder.
5. Black light.
6. 1 Tomato per student.
7. Pre-Prepared Ingredients for fresh salsa recipe (See Investigation Activity 2.4).
*Note: One batch requires 3 tomatoes. Adjust recipe to accommodate class size, see Investigation Activity 2.4.
8. Food preparation gloves - one pair per student.
9. Plastic knives - one per student.

10. Cutting mats - one per group.
11. Bleach sanitizing solution - one spray bottle per group.
12. See Appendix D for additional food preparation information.

Advance preparation

1. Prepare all ingredients for the fresh salsa recipe ahead of time and have them ready to go in the stock-pot. Students will add the tomatoes.
2. Brush a tomato with Glo Germ™ powder OR brush a knife with Glo Germ™ powder OR brush a cutting mat with Glo Germ™ powder OR ***Some variation of the above as long as foods containing Glo Germ™ are not mixed in with what is going to be consumed.**

Alternate preparation so that students do not handle Glo Germ™ “contaminated” items
 Set up a food preparation area in the front of the classroom. Brush tomato, knife, or cutting mat with Glo Germ™ powder. Turn off lights and use black light while you prepare salsa items. Students will be able to watch cross contamination occur, but there will be no risk of students getting Glo Germ™ on themselves or in the group salsa. Lead discussion of why proper food handling is crucial to food safety. Turn on lights and allow students to go to their own food preparation areas that do not contain any items with Glo Germ™ powder.

References and Background Information

1. Fight BAC! website: www.fightbac.org
2. Did you know? Your kitchen could be a source of illness. www.gaps.cornell.edu
3. Fresh salsa recipe by Diana Rattray. Southern U.S. Cuisine
<http://southernfood.about.com/od/salsarecipes/r/bl40212k.htm>
4. GAPs hand washing magnets. www.gaps.cornell.edu
5. GAPsNET: www.gaps.cornell.edu

Interest approach

Tell students they will be preparing fresh salsa. Some things have been “contaminated” with Glo Germ™ so they will need to practice proper food handling techniques including proper hand washing and keeping their food preparation area clean.

Classroom procedures

Teaching procedures	Content
Briefly review previous lesson and introduce today’s lesson.	As we saw in our farm assessment in the previous lesson, worker health and hygiene is very important to produce food safety. Another area where food handling and hygiene techniques are important is in the kitchen of homes as well as in food service establishments.
State expectations for today’s lesson.	By the end of today’s investigation you will be able to: Demonstrate how to minimize food safety hazards through proper handling, preparation, and storage techniques.

<p>Lead discussion on importance of proper hand washing for disease control and how personal health can also influence food safety.</p> <p>Ask several students to apply Glo Germ™ lotion to their hands</p>	<p>Improper hand washing by those who prepare and handle foods has been the cause of many foodborne illness outbreaks. People who are ill or who have symptoms of nausea, vomiting, or diarrhea can transmit harmful pathogens and should not work with foods.</p>
<p>Discuss glove use. In some states, there is a law that says that gloves and utensils must be used when handling ready-to-eat foods.</p>	<p>Open or infected wounds, blisters, or cuts can also transmit harmful pathogens and should be properly bandaged and cleaned. Intact gloves should be worn when preparing foods and handling ready-to-eat foods. Proper hand washing should be done many times throughout the day and clean, intact gloves should be used to prevent disease transmission. Gloves should be discarded when they are dirty, torn, or used.</p>
<p>Turn off the lights and show the “germs” on the hands of the students who applied the lotion. “Germs” on their clothes, pens, or face may be seen depending on what they have touched since applying the lotion. Have students wash as they normally would.</p>	<p>The lotion you rubbed on your hands simulates germs that can be transferred from person to person or from person to food.</p> <p>Frequent, proper hand washing is one of the most effective strategies for preventing foodborne illness.</p> <p>Go ahead and wash it off.</p>
<p>Re-examine students hand with the Black Light to show areas not properly washed, paying close attention to the nails and between the fingers.</p> <p>Hand out Case Notes 2.4 or use ppt template to help students organize their notes.</p> <p>Lead students through a demonstration of proper hand washing procedure.</p>	<p>As you can see, even though proper hand washing is one of the most effective strategies for preventing foodborne illness, few people do it properly.</p> <p>In your Case Notes, take a moment to write down how well the students with the lotion washed their hands as indicated by the Glo Germ™ that remained and glowed under the black light.</p> <p>Does anyone know how long you should wash your hands for it to be most effective?</p> <ul style="list-style-type: none"> • 20 seconds <p>Describe how you wash your hands from start to finish.</p>

<p>OPTIONAL ACTIVITY Break students into same gender groups of five (because they will have to use the bathroom sinks and they are usually one gender only). Apply Glo Germ™ lotion to hands of four people. One person will time the other four. Send all to the bathroom. One person just rinses with water, one person washes for 5 seconds, one person washes for 10 seconds, and one person washes for 20 seconds. Using the black light compare effectiveness of different washing strategies.</p>	<p>Proper hand washing procedures:</p> <ol style="list-style-type: none"> 1. Wet hands with clean, warm water. 2. Apply soap. 3. Rub hands together for at least 20 seconds (sing the Alphabet song to yourself – that takes about 20 seconds). Clean under the nails and between the fingers. Rub fingertips of each hand in suds on palm of opposite hand. <p>Rinse under clean, running water and dry with a single use paper towel.</p>
<p>Introduce students to the 4 Cs of food safety. Lead discussion asking them for input into what each of the 4 Cs represents.</p>	<p>Besides washing hands frequently, what are some other ways that we can reduce the risks of contamination when handling and preparing foods?</p> <p>The 4 Cs of food safety:</p> <ol style="list-style-type: none"> 1. Clean 2. Combat Cross-Contamination 3. Cook 4. Chill
<p>Go over the 4 Cs in detail. Have students use Case Notes 2.4 to guide their note taking.</p>	<p>Clean: Wash hands and surfaces often. Wash hands for at least 20 seconds with warm soapy water.</p> <p>Wash cutting boards, knives, other utensils and counter tops with hot, soapy water: 1) after you cut meats, poultry, seafood, and soft cheeses and 2) before you handle vegetables and fruits, especially those you will eat raw.</p> <p>Rinse all fruits and vegetables in cool water. Use a vegetable brush on fruits and vegetables with hard skins or rinds, like melons, lemons etc. You can buy special products made to wash fresh produce. NOTE: do not use regular soap or detergent because residues of these products also can make you sick.</p> <p>Wash dish towels with hot, soapy water. Use a clean one each day if possible. Wash and use a 50 parts per million (ppm) bleach solution to kill bacteria on sponges, cleaning pads and brushes often (every day if possible).</p>

	<p>Four easy cleaning steps:</p> <ol style="list-style-type: none"> 1. Wash all surfaces with soap. 2. Rinse with clean water. 3. Clean (soak, spray, or wipe) with a 50 ppm bleach solution to kill bacteria. <p>Rinse with clean water again if you are using bleach solution, since you are using it on surfaces that come in contact with food.</p>
<p>Continue to go over the 4 Cs in detail. Have students use Case Notes 2.4 to guide their note taking.</p>	<p>Combat Cross-Contamination: Make sure that raw meats, poultry, seafood, and eggs are kept separate from fresh produce and ready-to-eat foods when shopping, preparing, and storing.</p> <p>Put raw meats in a plastic bag or container in the bottom of the shopping cart, refrigerator or freezer so juices will not drip on other foods. If possible, have two cutting boards for preparing foods, one designated for vegetables, fruits and ready-to-eat foods and one for raw meat, poultry, and seafood.</p>
<p>Continue to go over the 4 Cs in detail. Have students use Case Notes 2.4 to guide their note taking.</p>	<p>Cook: Cook food long enough and hot enough to kill bacteria.</p> <p>Use a good quality thermometer to check for doneness.</p> <p>How hot should foods be cooked in order to kill bacteria? 165°F.</p> <p>Bring the temperature up to 165°F for 15 seconds when reheating sauces, stews, and gravies. Reheat only one time! Discard leftover reheated foods.</p> <p>What FATTOM factor does this relate to?</p> <ul style="list-style-type: none"> • Time • Temperature

Continue to go over the 4 Cs in detail. Have students use Case Notes 2.4 to guide their note taking.

Chill: Check temperatures of refrigerators and freezers to keep foods at their proper temperature. Never defrost food at room temperature.

Keep refrigerators at 40°F or below. Keep freezers at 0°F or below. Keep dairy products, like milk and eggs, cold. Defrost frozen foods in the refrigerator, microwave, or in a plastic bag in cold water. If in plastic bag, change water every 30 minutes or add ice to keep water cold. Large pieces of meat may require 2-3 days to defrost in refrigerator.

Which FATTOM factors does this relate to?

- Time
- Temperature

DO NOT THAW MEATS, POULTRY, OR SEAFOOD OUT ON THE COUNTER AT ROOM TEMPERATURE!

According to the Food Code frozen foods should be thawed under running water of 70°F or below.

If you defrost food in a microwave, you must cook it right away.

Marinate food in the refrigerator so bacteria will not grow. Food will still absorb the flavors and taste great. **IMPORTANT – DO NOT REUSE MARINADE!**

Two Hour Rule: refrigerate or freeze food, like leftovers, within 2 hours or within 1 hour if it's very hot (90°F or above). Divide leftovers into small shallow containers for quick cooling and quick defrosting.

<p>Assign Investigation Teams to a lab station along with one tomato each.</p> <p>Before each student can add their ingredient to the stock-pot, check their sample to be sure there are no foreign objects present and if the students have used Glo Germ™ contaminated utensils or cutting mats, check with the black light to check for any Glo Germ™ “contamination”.</p> <p>Use any real or simulated contamination as a discussion point.</p> <ul style="list-style-type: none"> • Did the student clean and sanitize their food preparation area? • Did the student wash the surface of the tomato? • Did they cross-contaminate with a “contaminated” utensil? <p>Once students have added their tomato to the batch of salsa hand them Investigation 2.4 or use the ppt template as a guide to help organize their notes. Students will also need to complete the reflection questions.</p>	<p>Now we are going to put these practices into action.</p> <p>Each group of you will prepare a tomato for the fresh salsa recipe. Follow proper food handling and preparation practices! Remember the 4 Cs! Wash your hands properly and wear gloves to prepare the ingredients.</p> <p>Once you have finished slicing and dicing, bring your tomato to the teacher for inspection. If no contamination is found, it can be added to the stock-pot.</p> <p>If any real or simulated contamination is found, discard the tomato and determine how the contamination occurred. If you used Glo Germ™ “contaminated” utensils, use the black light to help determine “contamination” origin. If you find contamination at your preparation area, wash and sanitize following 4 easy cleaning steps outlined earlier, then prepare another tomato.</p>
<p>Context with future use</p>	<p>The Case File must be in order to complete lesson 2.5</p>
<p>Reflection for future use</p>	



Stop the Spread

Case Notes 2.4

Name: _____ Date: _____

What was your reaction to how much Glo Germ™ remained on your or someone else's hands after washing? _____

What areas of the hands retained the most Glo Germ™ and were the most difficult to wash? _____

Frequent, proper hand washing is one of the most effective strategies for helping to prevent foodborne illness. To be most effective, hands should be washed for _____ seconds.

Proper hand washing procedures
1.
2.
3.
4.

What are the 4 Cs of Food Safety?

C:

C:

C:

C:

1. Clean: _____

Four easy cleaning steps

- _____
- _____
- _____
- _____

2. Combat cross-contamination: _____

If possible, have two separately designated cutting boards:

- 1 for _____
- 1 for _____

3. Cook: _____

4. Chill: _____

DO NOT:

- _____

- _____



Stop the Spread

Investigation Activity 2.4

Name: _____ Date: _____

Directions: After you have prepared your tomato for the class salsa recipe. Answer the reflection questions below.

Reflection Questions:

1. Did you observe any Glo Germ™ contamination on your tomato before cutting?

On your knife? _____

On your cutting board? _____

2. What, if any, proper food handling and preparation protocols did you follow?
(Hint: 4 Cs and Proper Hand Washing Procedures)

3. Where do you think the source of contamination occurred first?

To make 2 cups fresh salsa at home you will need:

INGREDIENTS

- 3 Tablespoons finely chopped onion
- 2 Garlic cloves, minced
- 3 Large ripe tomatoes, peeled and seeds removed, chopped
- 2 Hot chili peppers (Serrano or Jalapeno) finely chopped
(NOTE: BE EXTREMELY CAREFUL WITH PEPPERS! WEAR FOOD HANDLING GLOVES AND DO NOT TOUCH EYES, NOSE OR MOUTH!)
- 2 Tablespoons minced cilantro
- 2 Tablespoons lime juice
- Salt & Pepper to taste

PREPARATION

Put chopped onions and garlic in a strainer, pour 2 cups boiling water over them then drain thoroughly. Discard water.

Combine onions and garlic with chopped tomatoes, peppers, cilantro, lime juice, salt and pepper.

Refrigerate for 2 to 4 hours to blend flavors.

Original Recipe: 3 Students	15 Students	21 Students
3 Large ripe tomatoes, peeled and seeds removed, chopped	15 Large ripe tomatoes peeled and seeds removed, chopped	21 Large ripe tomatoes peeled and seeds removed, chopped
3 Tablespoons finely chopped onion	15 Tablespoons finely chopped onion	21 Tablespoons finely chopped onion
2 Garlic Cloves, minced	10 Garlic Cloves, minced	14 Garlic Cloves, minced
2 Hot chili, Serrano or Jalapeno peppers finely chopped	10 Hot chili, Serrano or Jalapeno peppers finely chopped	14 Hot chili, Serrano or Jalapeno peppers finely chopped
2 Tablespoons minced cilantro	10 Tablespoons minced cilantro	14 Tablespoons minced cilantro
2 Tablespoons lime juice	10 Tablespoons lime juice	14 Tablespoons lime juice
Salt and Pepper to taste	Salt and Pepper to taste	Salt and Pepper to taste



This lesson will be graded using the following Grading Rubric:

Assessment Criteria	Maximum Points	Points Scored
The student answered the questions correctly.	5	
The student demonstrated proper food handling and safety procedures during the lesson.	10	
The student completed their Case Notes.	8	
The assignment was neat, organized, and handed in on time.	2	
TOTAL	/25 =	%