FOOD SAFETY BASICS

2nd Edition



INSTITUTE OF child nutrition
RESOURCES • TRAINING • RESEARCH

Patricipant's Workbook

FOOD SAFETY BASICS

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Participant's Workbook

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INSTITUTE OF child nutrition

RESOURCES • TRAINING • RESEARCH

Key Area: 2

Code: Food Safety and HACCP 2600

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Institute of Child Nutrition
The University of Mississippi

The Institute of Child Nutrition was authorized by Congress in 1989 and established in 1990 at The University of Mississippi in Oxford and is operated in collaboration with The University of Southern Mississippi in Hattiesburg. The Institute operates under a grant agreement with the United States Department of Agriculture, Food and Nutrition Service.

PURPOSE

The purpose of the Institute of Child Nutrition is to improve the operation of child nutrition programs through research, education and training, and information dissemination.

MISSION

The mission of the Institute of Child Nutrition is to provide information and services that promote the continuous improvement of child nutrition programs.

VISION

The vision of the Institute of Child Nutrition is to be the leader in providing education, research, and resources to promote excellence in child nutrition programs.

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Background Information

Welcome to the Institute of Child Nutrition (ICN)'s *Food Safety Basics*. ICN developed *Food Safety Basics* to provide an understanding of best practices in food safety for school nutrition managers and employees. This training enables participants to learn and apply safe food handling practices. This *Food Safety Basics* course companion Participant's Workbook provides engaging resources in skill development and additional information you can refer back to after the training. This training is a condensed version of the *Food Safety in Schools* course.

ICN designed this training to be interactive so that you, the participant, can be actively involved in learning food safety concepts to apply in your school nutrition program. All school nutrition employees are responsible for food safety. This training provides tools to assist you in meeting this goal.

In this training, you will be given a copy of *Manager's Corner: Food Safety Basics*, which provides training concepts you may use for training purposes in your school nutrition program. These concepts provide tools for ease in planning and conducting each training session.

This Participant's Workbook contains helpful information, activities, and informational sheets. This will become your "go to" handbook for food safety information. Use the training and tools provided to maintain a safe food environment in your school nutrition program. Enjoy *Food Safety Basics*.

Professional Standards

FOOD SAFETY AND HACCP TRAINING – 2600

Employee will be able to effectively utilize all food safety program guidelines and health department regulations to ensure optimal food safety.

2620–Practice general food safety procedures.

2630–Practice Federal, State, and local food safety regulations and guidance.

2640–Promote a culture of food safety behaviors in the school community.

Key Area Code: 2

Training Objectives

At the end of this training, participants will learn about the following topics:

- Demonstrate proper employee health and hygiene practices to avoid the contamination of food by employees and reduce the risk of foodborne illness outbreaks;
- Explain safe food temperatures necessary to ensure food safety in a school nutrition operation;
- Compare different methods of contamination and how to prevent food exposure to biological, chemical, and physical contaminants; and
- Comprehend the design of a school nutrition food safety program that incorporates HACCP principles, the Process Approach, and Standard Operating Procedures.

Ground Rules

The following are ground rules and expectations for this training:

1. Be in the classroom at least 5 minutes before scheduled starting time.
2. Be respectful of everyone.
3. Avoid side conversations.
4. Use cameras at appropriate times.
5. Consider ALL ideas.
6. Turn your mind on and your electronics off.

Key Terms

Key Terms	Definition
Hazard Analysis Critical Control Point (HACCP)	A specific approach for identifying food safety hazards that involves finding potential food safety issues in your program and implementing preventative measures.
National School Lunch Program (NSLP)	A federally assisted meal program operating in public and nonprofit private schools and residential child care institutions. The program was established under the National School Lunch Act, signed by President Harry Truman in 1946.
Safety Data Sheet (SDS)	Documents produced by a chemical manufacturer that contain information about the chemical such as physical, health, and environmental health hazards; protective measures; and safety precautions for handling, storing, and transporting the chemical.
School Food Authority (SFA)	The governing body which is responsible for the administration of one or more schools; and has the legal authority to operate the Program therein or be otherwise approved by FNS to operate the Program.
Standard Operating Procedure (SOP)	Written best practices and procedures for producing safe food that address basic cleaning and sanitation programs and each step in the foodservice process (purchasing, receiving, storing, preparing, cooking, serving and holding, cooling, reheating, and transporting).
Time/Temperature Control for Safety Foods (TCS)	Foods that require control of time and temperature to limit pathogenic microorganism growth or toxin formation.

Lesson 1: Employee Health and Good Personal Hygiene Practices

Lesson Objectives:

- Discuss the importance of good personal hygiene practices.
- List symptoms and illnesses employees should report to their manager or director to prevent the spread of foodborne illness.
- Demonstrate the proper handwashing procedure to effectively reduce contaminants on the hands.
- Explain when to wash hands to prevent transmitting microorganisms.
- Explain how using utensils and single-use gloves to prevent bare hand contact with ready-to-eat foods reduces the risk of foodborne illness outbreaks.

Personal Hygiene

Introduction

Good personal hygiene is a basic requirement for implementing a food safety program. All school nutrition employees must follow the personal hygiene Standard Operating Procedures written for their school nutrition program.

Here Are the Facts

Research conducted by the U.S. Food and Drug Administration (FDA) shows that personal hygiene practices are often poor in retail foodservice establishments, which includes schools, hospitals, nursing homes, and restaurants*. Poor personal hygiene is a risk factor that must be controlled in all types of foodservice operations.

Application

- Report to work in good health, clean, and dressed in clean attire.
- Change apron when it becomes soiled.
- Wash hands properly, frequently, and at the appropriate times.
- Keep fingernails trimmed, filed, and maintained.
- Keep fingernails short and without artificial nails or nail polish.
- Do not wear any jewelry except for a plain ring such as a wedding band.
- Treat and bandage wounds and sores immediately. When hands are bandaged, single-use gloves must be worn.
- Report any illness to your manager.
- Cover any lesion containing pus with a bandage. If the lesion is on a hand or wrist, cover with an impermeable dressing such as a finger cot or stall and a single-use glove.
- Eat, drink, or chew gum only in designated break areas where food or food contact surfaces may not become contaminated.
- Wear hairnet, hat, or cap while in the kitchen.

- Taste food the correct way:
  - Place a small amount of food into a separate container.
  - Step away from exposed food and food contact surfaces.
  - Use a teaspoon to taste the food. Remove the used teaspoon and container to the dish room. Never reuse a spoon that has already been used for tasting.
  - Wash hands immediately.

Remember, follow state or local health department requirements.

*U.S. Food and Drug Administration. (2009) *FDA report on the occurrence of foodborne illness risk factors in selected institutional foodservice, restaurant, and retail food store facility types.* Retrieved from http://www.fda.gov/Food/GuidanceRegulation/RetailFoodProtection/FoodborneIllnessRiskFactorReduction/ucm224321.htm

Employee Health and Personal Hygiene Videos Key Points

1. What symptoms should you report to your supervisor?

- Diarrhea
- Vomiting
- Sore throat with fever
- Infected wound or boil on hands or arms
- Jaundice (yellowing of skin and eyes)
- Diagnosis of or exposure to a foodborne illness

2. What are the Big 6 foodborne pathogens?

- Norovirus
- *Salmonella*
- *Salmonella* Typhi
- *E. coli*
- *Shigella*
- Hepatitis A

3. What is the difference between being excluded and restricted from work?

- Exclusion means a school nutrition employee is not permitted to work in or enter a food preparation site. This requirement applies to areas where food is received, prepared, stored, packaged, served, vended, transported, or purchased.
- Restriction means a school nutrition employee's activities are limited to prevent the risk of transmitting a disease through food. A restricted employee cannot handle exposed food; clean equipment, utensils, linens; or unwrapped single-service or single-use articles.

4. What symptoms require exclusion from work?

- Vomiting
- Diarrhea
- Jaundice (yellowing of the skin and eyes)
- Diagnosed with one of the Big 6 foodborne pathogens
- Sore throat with fever if working with a highly susceptible population (e.g., preschool age children, immunocompromised people, or older adults)

5. What symptoms require restriction at work?

- Sore throat with fever if **not** working with a highly susceptible population (e.g. preschool age children, immunocompromised people, or older adults)
- Open wounds or cuts on the hands or arms that are not properly covered

6. What are some jobs that can be performed under restriction?

- Cashier
- Stocking canned or packaged food products
- Cleaning and maintenance outside of production kitchen

7. What are the employee's incorrect actions that contributed to the foodborne illness outbreak?

- She did not report her symptoms of illness to her supervisor.
- She wore her apron in the bathroom.
- She did not wash her hands properly after throwing up in the restroom.
- She wiped her hands on her apron.
- She double gloved her hands.
- She sneezed into her gloves, did not throw her gloves away, wash her hands, or put on a new pair of gloves.
- She sneezed over the food.
- She wiped her face with a towel and then used that towel to clean a scoop.

8. What are some ways to prevent a foodborne illness?

- Report symptoms to your supervisor.
- Exclude or restrict employees based on symptoms.
- Wash hands properly and at proper times.
- No bare hand contact with ready-to-eat foods.
- Replace gloves when they become dirty or when switching tasks.
- Protect an infected cut or wound with a bandage and a single use glove.

Common Foodborne Illnesses

Symptoms	Where Microorganism Can Be Found or "Common Source"	Prevention Strategies
Shiga toxin-producing *Escherichia coli* 0157:H7		
Symptoms begin 3–8 days after eating contaminated food, can last 2–9 days, and include: • cramping, • diarrhea (watery or bloody), • vomiting, and • hemolytic uremic syndrome (hus).	• Intestinal tract of animals, particularly cattle and humans • Raw or undercooked ground beef • Raw milk or dairy products • Unpasteurized apple cider or juice • Imported cheeses • Dry salami • Uncooked fruits and vegetables	• Practice good personal hygiene. • Follow handwashing guidelines. • Follow procedures to avoid cross contamination. • Cook all poultry and meat to correct internal temperature, and confirm with a thermometer. • Use only pasteurized milk, dairy products, or juices. • Wash all produce in cold, running water. • Cool foods properly.
Salmonellosis *Salmonella spp.* (Nontyphoidal Salmonella)		
Symptoms begin 6–48 hours after eating contaminated food, last 1–2 days, and include: • stomach cramps, • headache, • nausea, • fever, • diarrhea, • vomiting, and • severe dehydration (infants and elderly).	• Raw meats and poultry • Milk and dairy products • Fish and shrimp • Sauces and salad dressings • Cake mixes • Cream-filled desserts and toppings • Peanut butter • Cocoa and chocolate • Sliced fresh fruits and vegetables such as melons, strawberries, or tomatoes • Raw sprouts	• Practice good personal hygiene. • Follow handwashing guidelines. • Follow procedures to avoid cross contamination. • Cook all foods to correct internal temperature and confirm with a thermometer. • Hold hot foods at 135 ºF or above. • Cool foods properly.

Symptoms	Where Microorganism Can Be Found or "Common Source"	Prevention Strategies
***Salmonella* Typhi (Typhoid Fever)**		
Symptoms usually begin in 1–3 weeks, but may show as long as 2 months after exposure. Symptoms include: • high fever, • stomach pain, • diarrhea or constipation, • aches, • headaches, • fatigue, • loss of appetite, and • rash of flat, rose-colored spots.	• Intestinal tract of humans • Untreated or fecal-contaminated water or ice • Raw fish, meats, and poultry • Unpasteurized milk and dairy products • Raw vegetables, fresh fruit, and salads washed with untreated or sewage-contaminated water	• Follow handwashing guidelines. • Avoid bare hand contact with ready-to-eat foods. • Report symptoms of diarrhea and vomiting and diagnosis of or exposure within the past 14 days to others with typhoid fever to your immediate supervisor. Do not work when you have these symptoms. • Use potable (clean) water for handwashing, cleaning, and sanitizing food contact surfaces and washing produce. • Ensure all foods are purchased from a safe supplier. • Cook all foods to correct internal temperature and confirm with a thermometer.
***Shigella spp.* (Shigellosis)**		
Symptoms begin 12–50 hours after eating contaminated food, last up to 2 weeks, and include: • abdominal pain, • diarrhea containing blood/mucus, • fever, • nausea, • vomiting, • chills, • fatigue, and • dehydration.	• Intestinal tract of humans • Polluted water; spread by flies and food handlers • Meat salads • Potato and pasta salads • Lettuce and other raw vegetables • Milk and dairy products • Ready-to-eat foods	• Practice good personal hygiene. • Follow handwashing guidelines. • Follow procedures to avoid cross contamination. • Use water from approved sources. • Control flies. • Maintain storage temperatures. • Cool foods properly.

Symptoms	Where Microorganism Can Be Found or "Common Source"	Prevention Strategies
Norovirus (Norwalk and Norwalk-Like Viral Agents)		
Symptoms begin 1–2 days after ingesting contaminated food or water and include: • nausea, • vomiting, • diarrhea, • abdominal pain, • headache, and • mild fever.	• Contaminated drinking water • Shellfish from contaminated water • Raw vegetables, fresh fruit, and salads contaminated by dirty hands	• Practice good personal hygiene. • Follow procedures to avoid cross contamination. • Wash all fresh produce to be served whole, peeled, or cooked, in cold, running water. • Use water from approved sources. • Obtain shellfish from approved, health-inspected sources, and cook thoroughly. • Cook all foods to required internal temperatures, and confirm with a thermometer.
Hepatovirus (Hepatitis A)		
Symptoms begin 10 days up to almost 2 months after ingesting contaminated food or water and include: • fever, • fatigue, • headache, • nausea, • loss of appetite, • vomiting, • stomach pain, and • later jaundice (yellow skin and eyes).	• Intestinal tract of humans • Human urinary tract • Contaminated water • Foods contaminated by food handlers, processing plants, or foodservice facilities • Foods of particular concern – prepared foods requiring no additional cooking: deli meats, salads, sandwiches, fruit and fruit juices, milk and dairy products, raw fruits and vegetables	• Practice good personal hygiene. • Follow procedures to avoid cross contamination. • Wash all fresh produce to be served whole, peeled, or cooked, in cold, running water. • Use water from approved sources. • Cook all foods to the required internal temperature, and confirm with a thermometer.

Symptoms	Where Microorganism Can Be Found or "Common Source"	Prevention Strategies
***Clostridium botulinum* (Botulism)**		
Symptoms begin 18–36 hours after eating contaminated food and include: • diarrhea or constipation; • weakness; • dizziness; • double vision or blurred vision; • difficulty speaking, swallowing, or breathing; and • paralysis.	• Home-canned foods • Improperly processed foods • Sausages and meats • Canned low-acid foods, such as certain vegetables • Untreated garlic in oil • Leftover, unrefrigerated, foil-wrapped baked potatoes • Sautéed onions in butter sauce	• Discard damaged cans. • Do not use home-canned foods in a foodservice establishment. • Do not mix and store oil and garlic. • Follow rules for time and temperature control. • Sauté onions as needed. Do not sauté and store unrefrigerated for later use. • Do not store leftover baked potatoes in foil wrapping. Unwrap and chill correctly. • Cool foods properly.
***Campylobacter jejuni* (Campylobacteriosis)**		
Symptoms begin 2–5 days after eating contaminated food, can last 7–10 days, and include: • diarrhea (watery or bloody), • fever, • nausea and vomiting, • abdominal pain, • headache, and • muscle pain.	• Unpasteurized milk and dairy products • Raw poultry • Raw beef • Non-chlorinated or fecal-contaminated water • Birds and flies can carry and contaminate food	• Practice good personal hygiene. • Follow handwashing guidelines. • Follow procedures to avoid cross contamination. • Cook all poultry, meat, and other foods to appropriate internal temperature and confirm with a thermometer. • Maintain good pest control. • Use only pasteurized dairy products. • Use water from approved sources.

Symptoms	Where Microorganism Can Be Found or "Common Source"	Prevention Strategies
Clostridium perfringens		
Symptoms begin 8–24 hours after eating contaminated food, last 24 hours, and include: • abdominal cramping and • diarrhea.	• Intestinal tracts of humans and animals • Cooked meat and poultry • Gravy • Beans	• Practice good personal hygiene. • Follow handwashing guidelines. • Follow procedures to avoid cross contamination. • Cook all foods to correct internal temperature and confirm with a thermometer. • Hold hot foods at 135 °F or above. • Cool foods properly.
Listeria monocytogenes **(Listeriosis)**		
Symptoms begin 3–70 days after eating contaminated food; 21-day onset is most common. Symptoms include: • sudden onset of fever, • muscle aches, • diarrhea or vomiting, • headaches, • stiff neck, • confusion, • loss of balance, and • convulsions.	• In soil, ground water, plants, and intestinal tracts of humans and animals • Unpasteurized milk and cheese • Ice cream • Raw vegetables • Raw and cooked poultry • Raw meat and fish • Prepared and chilled ready-to-eat foods • Deli meats, luncheon meats, hot dogs • Soft cheese such as feta, Brie, and Mexican-style cheeses	• Practice good personal hygiene. • Follow handwashing guidelines. • Follow procedures to avoid cross contamination. • Cook all poultry and meat to correct internal temperature and confirm with a thermometer. • Use only pasteurized milk, dairy products, or juices. • Wash all fresh produce in cold, running water. • Clean and sanitize food contact surfaces. • Maintain proper food temperatures.

Washing Hands SOP (Sample)

PURPOSE: To prevent foodborne illness by contaminated hands.

SCOPE: This procedure applies to anyone who handles, prepares, and serves food.

KEY WORDS: Handwashing, Cross Contamination

INSTRUCTIONS:

1. Train school nutrition employees on using the procedures in this SOP.
2. Follow state or local health department requirements.
3. Post handwashing signs or posters in a language understood by all school nutrition employees near all handwashing sinks, in food preparation areas, and restrooms.
4. Use designated handwashing sinks for handwashing only. Do not use food preparation, utility, and dishwashing sinks for handwashing.
5. Provide warm running water, soap, and a means to dry hands. Provide a waste container at each handwashing sink or near the door in restrooms.
6. Keep handwashing sinks accessible anytime employees are present.
7. Wash hands:
   - Before starting work
   - During food preparation
   - When moving from one food preparation area to another
   - Before putting on or changing gloves
   - After using the toilet
   - After sneezing, coughing, or using a handkerchief or tissue
   - After touching hair, face, or body
   - Eating, drinking, or chewing gum
   - After handling raw meats, poultry, or fish
   - After any clean up activity such as sweeping, mopping, or wiping counters
   - After touching dirty dishes, equipment, or utensils

Washing Hands SOP (Sample), continued

- After handling trash
- After handling money
- After any time the hands may become contaminated

8. Follow proper handwashing procedures as indicated below:
   - Wet hands and forearms with warm, running water at least 100 °F and apply soap.
   - Scrub lathered hands and forearms, under fingernails, and between fingers for at least 10-15 seconds. Rinse thoroughly under warm running water for 5-10 seconds.
   - Dry hands and forearms thoroughly with single-use paper towels.
   - Dry hands using a warm air hand dryer.
   - Turn off water using paper towels.
   - Use paper towel to open door when exiting the restroom.
9. Follow FDA recommendations when using hand sanitizers. These recommendations are as follows:
   - Use hand antiseptics, also called hand sanitizers, only after hands have been properly washed and dried.
   - Use only hand sanitizers that comply with the FDA *Food Code*. Confirm with the manufacturers that the hand sanitizers used meet these requirements.
   - Use hand sanitizers in the manner specified by the manufacturer.

MONITORING:

1. A designated employee will visually observe the handwashing practices of the school nutrition employees during all hours of operation.
2. The designated employee will visually observe that handwashing sinks are properly supplied during all hours of operation.

CORRECTIVE ACTION:

1. Retrain any school nutrition employee found not following the procedures in this SOP.
2. Ask employees that are observed not washing their hands at the appropriate times or using the proper procedure to wash their hands immediately.
3. Retrain employee to ensure proper handwashing procedure.

Washing Hands SOP (Sample), continued

VERIFICATION AND RECORD KEEPING:

The school nutrition manager will complete the Food Safety Checklist daily to indicate that monitoring is being conducted as specified. The Food Safety Checklist is to be kept on file for a minimum of 1 year.

DATE IMPLEMENTED: _____ **BY**: _____

DATE REVIEWED: _____ **BY**: _____

DATE REVISED: _____ **BY**: _____

Lesson 2: Temperatures for Food Safety

Lesson Objectives:

- Explain the importance of the temperature danger zone in ensuring food safety.
- Define time and temperature control for safety (TCS) foods and why temperatures must be controlled during food production.
- Describe the importance of using thermometers in a school nutrition program.
- Demonstrate how to calibrate a thermometer properly to ensure accurate temperatures are taken.
- Explain how to take the temperature of different kinds of food to get an accurate reading.
- Discuss important food safety time and temperature points throughout the foodservice process.

Time and Temperature Control for Safety (TCS) Foods

Foods that require control of time and temperature to limit pathogenic microorganism growth or toxin formation are known as time/temperature control for safety (TCS) foods. Here is a list of common TCS Foods.

Dairy products		Soy protein like tofu	
Meats and poultry		Sprouts and sprout seeds	
Fish and shellfish		Sliced melons	
Shell eggs (non-treated)		Cut tomatoes	
Baked potatoes		Cut leafy greens	

Heat treated plant based food like cooked vegetables, rice, and beans		Untreated garlic and oil mixtures	

Adapted from National Restaurant Association. (2012). *ServSafe manager (6th ed.)* Chicago: Author.

Calibrating Thermometers

Introduction

Food temperatures must be checked throughout the food preparation process, and the thermometers used must be accurate. School nutrition employees are responsible for checking the accuracy of thermometers and calibrating them if they are not accurate.

Here Are the Facts

Inaccurate thermometers will give misleading information. For example, if you use a thermometer that registers 10 °F higher than the actual temperature, you would cook ground beef to 145 °F rather than 155 °F. Conversely, if the thermometer registers too low, you could easily overcook food.

Application

It is important for school nutrition employees to know when and how to calibrate bi-metallic stemmed and digital (that can be calibrated) thermometers.

When?

Thermometers are sensitive and can lose calibration. It is important to calibrate them

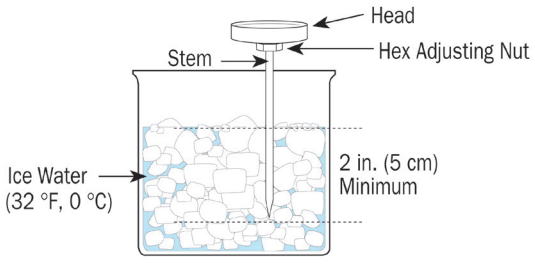
- ideally daily (but at least weekly),
- when they are dropped, or
- more often if specified by local policy.

How?

There are two methods to calibrate thermometers: the ice water method and the boiling water method.

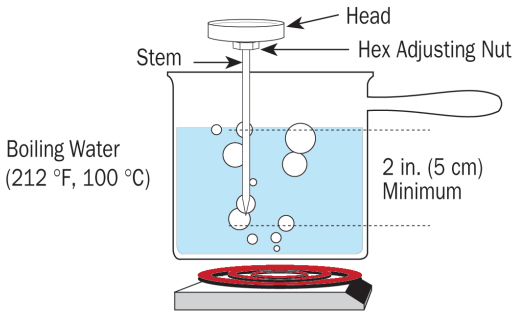
Ice Water Method

1. Fill a large container with ice.
2. Add water to within 1 inch of rim of container.
3. Stir mixture well.
4. Let sit for 1 minute.
5. Place thermometer in container so that the sensing area (dimple) of stem or probe is completely submerged.



6. Prevent thermometer from touching sides or bottom of container.
7. Let thermometer stay in ice water for 30 seconds or until the dial stops moving on a bi-metallic thermometer.
8. For a bi-metallic thermometer, place the calibration tool on the hex adjusting nut and rotate until the dial reads 32 °F, while in ice water.
9. For digital stemmed thermometers, follow the directions on the packing and press the reset button to calibrate.
10. Repeat process with each thermometer.

Boiling Water Method



1. Fill a saucepan or stockpot with water.
2. Bring water to a rolling boil.
3. Place thermometer in the container so that the sensing area of the stem or probe (dimple) is completely submerged.
4. Do NOT let the thermometer stem/probe touch sides or bottom of container.
5. Let thermometer stay in the boiling water for 30 seconds or until the dial stops moving.
6. Place the calibration tool on the hex-adjusting nut and rotate until the thermometer dial reads 212 °F, while in boiling water.
7. Some digital thermometers (thermistors) and thermocouples have a reset button that should be pushed.
8. Repeat process with each thermometer.

Note: The boiling point of water is about 1 °F lower for every 550 feet above sea level. If you are in a high altitude area, the temperature for calibration should be adjusted. For example, if you were at 1,100 feet above sea level, the boiling point of water would be 210 °F.

Documenting Calibration

Each time thermometers are calibrated, the process should be documented. The food safety program should include a form for documenting the calibration process of each thermometer.

Remember, follow state or local health department requirements.

Thermometer Calibration Log

Instructions: School nutrition employees will record the calibration temperature and corrective action taken, if applicable, on the Thermometer Calibration Log each a time thermometer is calibrated. The school nutrition manager will verify that school nutrition employees are using and calibrating thermometers properly by making visual observations of employee activities during all hours of operation. The school nutrition manager will review and initial the log daily. Maintain this log for a minimum of 1 year.

Date	Thermometer Being Calibrated	Temperature Reading	Corrective Action	Initials	Manager Initials/ Date

Using Thermometers Video Key Points

To keep food safe, temperatures of food need to be taken and recorded throughout the process.

- Take temperatures of food, storage areas, work areas, and equipment.

Storage and Work Area Temperatures (should be checked at least once a day):

- Storage rooms for dry goods: 50 – 70 °F
- Refrigerator (walk-in, reach-in, and milk coolers): 41 °F or below
- Freezers: at or below 0 °F

Step	Food Temperatures	Food Thermometer
Receiving	• Cold food: 41 °F or below • Frozen food: at or below 32 °F • Hot food: 135 °F or above	• Infrared: point toward food and make sure laser appears on surface. ▪ Good to use for frozen items • Stemmed thermometer or thermocouple ▪ Insert into food; good to use for milk ▪ For bagged items, fold bag in half and place thermometer in between 2 bags.
Storing	• Cold food: 41 °F or below • Frozen food: at or below 0 °F	See Receiving
Cooking	• Internal temperatures (hold at or above specified temperatures for 15 seconds): ▪ Ready-to-eat – 135 °F ▪ Fish or whole muscle cuts of meat – 145 °F ▪ Ground Meats– 155 °F ▪ Poultry – 165 °F ▪ Soups/Casseroles – 165 °F	• Whole roast: take temperature at the center of the roast, avoiding bones, gristle, and fat. • Hamburgers: digital thermometer to take temperature
Reheating	165 °F or above for 15 seconds	See Cooking
Holding and Serving	• Hot foods: at or above 135 °F • Cold foods: at or below 41 °F	Insert a bi-metallic stem, digital stem or thermistor, thermocouple, or single-use temperature indicator into item being checked.

Temperature of high temperature dishwasher:

- 180 °F final rinse temperature
- Check temperature of the machine.
- Also, check temperature using a high temperature thermometer or single-use temperature indicator placed on a tray and run through the machine.
- If single-use temperature indicator is used, when water comes into contact with the surface, it must read at least 160 °F.
- Follow dish machine manufacturer's instructions.

Always remember to document temperatures. Write the date, time, temperature, and initials of person responsible for each temperature taken. **If readings do not meet safe temperatures, take corrective action immediately and document corrective actions.**

- If all random samples of a received product are out of the safe temperature range, the corrective action is to reject the shipment. Report findings to the school nutrition manager or director.
- If a food item has not reached the correct internal temperature, return the food to the oven until it reaches the correct temperature.

Clean, sanitize, and store thermometers properly after each use.

- Wash thermometers by hand with soapy water and rinse.
- Sanitize thermometers by wiping them with alcohol wipes or dipping them in a sanitizing solution that is approved for use on food contact surfaces.
- Store each thermometer in its case to help prevent damage.

Using Food Thermometers

Introduction

Thermometers are essential tools in any school nutrition program and are necessary to implement a food safety program. School nutrition employees need to know how to use thermometers to check food temperatures.

Here Are the Facts

Thermometers are designed for different uses and different temperature ranges. Food thermometers need to measure temperatures between 0 °F and 220 °F. Thermometers needed to check food temperatures include the following:

- Thermistor or thermocouple with a thin probe 
- Bi-metallic stemmed thermometer 
- Oven-safe bi-metallic thermometers 
- Equipment thermometers 

Application

How to Care for Thermometers

- Clean and sanitize thermometers before each use. Washing thermometers by hand unless specified by the manufacturer that the thermometer can go through the dishwasher. Sending thermometers through the dishwasher (unless they are specially designed for use in dishwashers) can ruin the thermometer.
- Wash the stem of the thermometer and sanitize by dipping stem into sanitizing solution or wiping with a sanitizing wipe. Allow to air-dry.
- Store food thermometers in a clean area where they are not subject to contamination.
- Check and change batteries in digital thermometers on a routine basis.

How to Take Temperatures

Measure the internal temperature of food by inserting the stem of the thermometer into the thickest part of the food, being sure to cover the sensor (dimple). Wait for the dial or digital indicator to stabilize for about 15 seconds. Take temperatures based on the type of food.

- Meats
    - Roasts—insert thermometer in the middle of the roast avoiding any bones.
    - Poultry—insert thermometer at the thickest part avoiding any bones.
    - Casseroles—check temperature in the center and at several other points.
    - Thin meats, such as hamburger patties—use a thermistor or probe that is tip sensitive to check temperatures.
- Milk—open a carton and insert thermometer at least 2 inches into the milk.
- Packaged foods—insert the thermometer between two packages without puncturing the packages.

Recording Temperatures

When food temperatures are taken, they should be recorded on the production record or on a separate cooking and reheating log.

Remember, follow state or local health department requirements.

Temperatures Through Food Production

Important Temperatures	Why It Is Important	Best Practices
Purchasing		
• Cold food: 41 °F and below • Hot food: 135 °F and above	Buy from vendors that have good food safety practices in place to ensure the food you purchase has not been temperature abused.	• Buy from reputable vendors. • Include food safety standards in purchasing agreements.
Receiving		
• Refrigerated food: 41 °F and below • Frozen food: at or below 32 °F • Hot food: held at or above 135 °F	Cold foods must be received at 41 °F or below so that it is not in the temperature danger zone. Frozen food must be frozen and contain no ice crystals. Ice crystals are a sign that the food has been thawed and refrozen.	• Keep receiving area clean. • Inspect the delivery truck. Make sure it is clean and free of odors. Check food temperatures, paying particular attention to frozen and refrigerated products. • Look for signs of contamination and container damage. Reject damaged packages; their contents may also be contaminated or damaged. • Check for separation of raw and ready-to-eat or prepared foods during transport. • Store foods immediately.
Storing		
• Dry storage areas: between 50 °F and 70 °F • Refrigerated storage areas: at or below 41 °F • Deep chilling storage areas: between 26 °F and 32 °F • Freezer storage areas: between -10 °F and 0 °F	Storing food out of the temperature danger zone assists in preserving food quality and decreases the likelihood of bacterial growth. However, dry storage items are shelf stable in the temperature danger zone because bacteria present in the sealed container is eliminated during processing.	• Use the First In First Out (FIFO) principle. Older products should be used first. • Store products in original packaging. Label foods with delivery date. • Keep raw foods separate from cooked or ready-to-eat products. • Store foods at least 6 inches off the floor and 6 inches away from the wall. • Keep storage areas clean, dry, and pest-free. • Store chemicals away from foods and food-related supplies. • Maintain, monitor, and record refrigerator, freezer, and dry storage room temperatures.

Important Temperatures	Why It Is Important	Best Practices
Preparing		
• Pre-chill ingredients for cold foods to 41 °F or below before combining with other ingredients. • Limit the preparation time of any ingredients to no more than 30 minutes at room temperature before cooking, serving, or returning to the refrigerator.	These methods prevent food from being in the temperature danger zone too long.	• Wash hands frequently, properly, and at appropriate times. • Avoid cross contamination. • Keep foods out of the temperature danger zone. • Use batch cooking to limit the time between preparation and service. • Thaw foods properly. • Chill all cold foods as quickly as possible. • Prepare foods as close to serving time as the menu will allow.
Cooking		
• 165 °F – poultry, stuffing, stuffed meats, stuffed pasta, casseroles, leftovers • 155 °F – ground meats, such as hamburger, ground pork, sausage, eggs for hot holding • 145 °F – beef roasts, pork roasts, beef steaks, ham, fish • 135 °F – ready-to-eat foods taken from a commercially processed, hermetically sealed package; vegetables (frozen or canned)	Cooking foods to the correct internal temperature will destroy existing bacteria, even though it may not kill toxins or bacterial spores.	• Avoid cross contamination. • Cook foods to the proper internal temperature for appropriate time. • Use a clean and calibrated food thermometer. • Record internal food temperature.
Holding and Serving		
• Cold food: held at or below 41 °F • Hot food: held at or above 135 °F	These temperatures keep food out of the temperature danger zone and prevent pathogen growth.	• Avoid cross contamination. • Keep foods out of the temperature danger zone. • Monitor and record food temperatures. • Monitor the temperature of hot holding and cold holding equipment.

Important Temperatures	Why It Is Important	Best Practices
Cooling		
• Hot food must be cooled from 135 °F to 70 °F within 2 hours. If not, the food must be reheated to 165 °F for 15 seconds or discarded. • Food must be cooled within a total of 6 hours from 135 °F to 41 °F (if step one is achieved). • Foods that start at room temperature (70 °F) must be cooled to 41 °F within 4 hours.	This is the time and temperature regulations specified by the *Food Code* to safely cool foods in order to prevent bacterial growth.	• Speed up cooling by using techniques such as: ▪ Stirring frequently ▪ Dividing food into small quantities ▪ Using shallow pans ▪ Using ice water baths or ice paddles whenever possible • Use a clean and calibrated food thermometer to check temperatures. • Monitor and record food temperatures during the cooling process. • Store foods appropriately – covered, labeled with product name and date prepared.
Reheating		
165 °F for 15 seconds within 2 hours	This is the temperature and time required to kill any bacteria that may be present in the food.	• Reheat to internal temperature of 165 °F for 15 seconds within 2 hours of less. • Monitor and record internal temperatures of foods. • Never reheat food in hot holding equipment. • Recommended to reheat food one time; quality diminishes each time.
Transporting		
Refer to temperatures for holding		

Food Safety Throughout the Foodservice Process

Instructions: For the provided food process step, write either one thing your school nutrition program needs to improve in this area, or one thing it is already doing well.

Purchasing

Receiving

Storing

Preparing

Cooking

Holding

Cooling

Reheating

Lesson 3: Avoiding Contamination of Food

Lesson Objectives:

- Discuss the three different types of food contamination and methods for preventing them to ensure food safety.
- Explain how properly cleaning, rinsing, and sanitizing can prevent food contamination.

Common Causes of Food Contamination

Cross Contamination: the transfer of bacteria or viruses from hand-to-food, food-to-food, or equipment and food contact surfaces-to-food	
Example	**How to Avoid It**
Hand-to-Food: lifting the trash can lid with your hands, then preparing food without first washing your hands	• Wash hands properly, frequently, and at appropriate times. • Wash hands before putting on single-use gloves and change gloves frequently. • Wear gloves or use utensils when handling ready-to-eat foods. • Cover cuts, sores, and wounds with a clean bandage and a single-use glove. • Keep fingernails short, unpolished, and clean. • Do not wear jewelry, except for a plain band such as a wedding ring. • Do not allow sick employees to work.
Food-to-Food: thawing raw meat in the refrigerator above fresh produce and allowing the meat juices to drip on the produce	• Separate meats and other raw products from ready-to-eat foods during receiving, storage, and preparation. • Separate different types of raw animal foods, such as eggs, fish, meat, and poultry, from each other except when combined in recipes. Store foods according to final cook temperature. • Separate unwashed fruits and vegetables from washed fruits and vegetables and other ready-to-eat foods. • Place food in covered containers or packages, except during cooling. Store in the refrigerator or cooler. • Thaw food properly. • Properly clean, rinse, and sanitize all food contact surfaces between contact with raw products and fresh or ready-to-eat products.
Equipment or Food Contact Surfaces-to-Food: using a can opener for several food items without cleaning it between uses OR using a cutting board to cut raw meat but not cleaning and sanitizing it before cutting apples	• Use dry, cleaned, and sanitized equipment and utensils for food preparation. • Clean and sanitize worktables, equipment, and cutting boards after each use and before beginning a new task. • Use separate cutting boards for different foods (e.g. raw meats and fresh produce). This practice also applies to different types of meat (e.g. using separate cutting boards to cut chicken and then to prepare beef). If separate cutting boards are not available, wash, rinse, sanitize, and air-dry the cutting board between tasks. • Clean and sanitize surfaces that are handled often, such as refrigerator and freezer handles. • Use only dry, cleaned, and sanitized containers for food storage. Cover all foods well and label and date them. • Maintain a fresh bucket of cleaning solution and a fresh bucket of sanitizing solution in the work area so that cleaning and sanitizing can be done easily.

Example	How to Avoid It
Chemical Contamination: when chemicals unintentionally come in contact with food	
Spraying sanitizer on the counter next to an uncovered pot of food cooking on the stove	• Store chemicals away from food products. • Do not use chemicals in an area when you are preparing food. • Store chemicals in original containers with labeling information. • Never use food containers for chemicals or chemical containers for food. • Use chemicals only for recommended purposes. • Use Safety Data Sheets (SDS) provided by the manufacturer to ensure chemicals are stored and used properly. • Check the concentration of the sanitizing solution with a sanitizing test kit to make sure it is at appropriate levels to sanitize. • Teach employees how to use chemicals.
Cross Contact: when an allergen accidentally transfers from one food containing an allergen to another food or surface that does not contain the allergen	
Using a knife to spread peanut butter for peanut butter and jelly sandwiches and then using the same knife to cut a turkey sandwich without cleaning and sanitizing between uses	• Follow proper handwashing procedures, and wash hands before preparing allergen-free foods. Also, wash hands between handling allergen-free foods and foods that contain allergens. • Wear single-use gloves. • Use a clean apron when preparing allergen-free food. • Wash, rinse, and sanitize all utensils, equipment, and food contact surfaces before and after each use. • Isolate allergen-free ingredients in storage and preparation. • If possible, designate an allergy-free zone in the kitchen. When working with multiple food allergies, set up procedures to prevent cross contact within the allergy-free zone. • Prepare allergen-free foods first, wrap and label them (with name, color code, or stickers), and place them on the top storage shelf until service. • If possible, use clean potholders and oven mitts for allergen-free foods to prevent cross contact. • Use color coded utensils, equipment, etc., or designate equipment and utensils for allergen-free foods.

Preventing Food Contamination

Instructions: Write a possible scenario for each type of contamination in the "Scenario" section of the chart. After you write the scenarios, you will trade workbooks with your partner who will write possible prevention methods for your scenarios. There may be more than one correct prevention method.

Type of Contamination	Scenario	Prevention
Cross Contamination		
Chemical Contamination		
Cross Contact		

Proper Cleaning, Rinsing, and Sanitizing Procedures

Step 1: **Wash surface with detergent solution to clean.** Tip: Replace detergent solutions when the water becomes dirty or has debris in it.	
Step 2: **Rinse surface with clean water to remove debris and detergent.**	
Step 3: **Sanitize surface using a sanitizing solution safe for food contact surfaces and mixed at the concentration specified on the manufacturer's label.** Tip: Check the concentration of the sanitizing solution with the appropriate sanitizing test kit to make sure it is at correct levels to sanitize as specified by the Safety Data Sheet (SDS) sheet. Chlorine: concentration between 50-100 ppm Quaternary ammonium: concentration as indicated by the manufacturer's direction	
Step 4: **Allow items to air-dry.**	

Cleaning and Sanitizing Food Contact Surfaces SOP (Sample)

PURPOSE: To prevent foodborne illness by ensuring that all food contact surfaces are properly cleaned and sanitized.

SCOPE: This procedure applies to school nutrition employees involved in cleaning and sanitizing food contact surfaces.

KEY WORDS: Food Contact Surface, Cleaning, Sanitizing

INSTRUCTIONS:

1. Train school nutrition employees on using the procedures in this SOP.
2. Follow state or local health department requirements.
3. Follow manufacturer's instructions regarding the use and maintenance of equipment and use of chemicals for cleaning and sanitizing food contact surfaces. Refer to Storing and Using Poisonous or Toxic Chemicals SOP.
4. If state or local requirements are based on the FDA *Food Code*, wash, rinse, and sanitize food contact surfaces of sinks, tables, equipment, utensils, thermometers, carts, and equipment:
   - Before each use
   - Between uses when preparing different types of raw animal foods, such as eggs, fish, meat, and poultry
   - Between uses when preparing ready-to-eat foods and raw animal foods, such as eggs, fish, meat, and poultry
   - Any time contamination occurs or is suspected
5. Wash, rinse, and sanitize food contact surfaces of sinks, tables, equipment, utensils, thermometers, carts, and equipment using the following procedure:
   - Wash surface with detergent solution.
   - Rinse surface with clean water.
   - Sanitize surface using a sanitizing solution mixed at a concentration specified on the manufacturer's label.
   - Place wet items in a manner to allow air-drying.

Cleaning and Sanitizing Food Contact Surfaces SOP (Sample), continued

6. If a 3-compartment sink is used, setup and use the sink in the following manner:
   - In the first compartment, wash with a clean detergent solution at or above 110 °F or at the temperature specified by the detergent manufacturer.
   - In the second compartment, rinse with clean water.
   - In the third compartment, sanitize with a sanitizing solution mixed at a concentration specified on the manufacturer's label or by immersing in hot water at or above 171 °F for 30 seconds. Test the chemical sanitizer concentration by using an appropriate test kit.
7. If a dishmachine is used:
   - Check with the dishmachine manufacturer to verify that the information on the data plate is correct.
   - Refer to the information on the data plate for determining wash, rinse, and sanitization (final) rinse temperatures; sanitizing solution concentrations; and water pressures, if applicable.
   - Follow manufacturer's instructions for use.
   - Ensure that food contact surfaces reach a surface temperature of 160 °F or above if using hot water to sanitize.

MONITORING:

School nutrition employees will:

1. During all hours of operation, visually and physically inspect food contact surfaces of equipment and utensils to ensure that the surfaces are clean.
2. In a 3-compartment sink, on a daily basis:
   - Visually monitor that the water in each compartment is clean.
   - Take the water temperature in the first compartment of the sink by using a calibrated thermometer.
   - If using chemicals to sanitize, test the sanitizer concentration by using the appropriate test kit for the chemical.
   - If using hot water to sanitize, use a calibrated thermometer to measure the water temperature. It should be at or above 171 °F. Refer to Using and Calibrating Thermometers SOPs at www.theicn.org.
3. In a dishmachine, on a daily basis:
   - Visually monitor that the water and the interior parts of the machine are clean and free of debris.

Cleaning and Sanitizing Food Contact Surfaces SOP (Sample), continued

- Continually monitor the temperature and pressure gauges, if applicable, to ensure that the machine is operating according to the data plate.
- For hot water sanitizing dishmachine, ensure that food contact surfaces are reaching the appropriate temperature at or above 160 °F by placing a piece of heat sensitive tape on a smallware item or an irreversible registering temperature indicator on a rack and running the item or rack through the dishmachine.
- For chemical sanitizing dishmachine, check the sanitizer concentration on a recently washed food-contact surface using an appropriate test kit.

CORRECTIVE ACTION:

1. Retrain any school nutrition employee found not following the procedures in this SOP.
2. Wash, rinse, and sanitize dirty food contact surfaces. Sanitize food contact surfaces if it is discovered that the surfaces were not properly sanitized. Discard food that comes in contact with food contact surfaces that have not been sanitized properly.
3. In a 3-compartment sink:
   - Drain and refill compartments periodically and as needed to keep the water clean.
   - Adjust the water temperature by adding hot water until the desired temperature is reached.
   - Add more sanitizer or water, as appropriate, until the proper concentration is achieved.
4. In a dishmachine:
   - Drain and refill the machine periodically and as needed to keep the water clean.
   - Contact the appropriate individual(s) to have the machine repaired if the machine is not reaching the proper wash temperature indicated on the data plate.
   - For a hot water sanitizing dishmachine, retest by running the machine again. If the appropriate surface temperature is still not achieved on the second run, contact the appropriate individual(s) to have the machine repaired. Wash, rinse, and sanitize in the 3-compartment sink until the machine is repaired or use disposable single service/single-use items if a 3-compartment sink is not available.
   - For a chemical sanitizing dishmachine, check the level of sanitizer remaining in bulk container. Fill, if needed. “Prime” the machine according to the manufacturer’s instructions to ensure that the sanitizer is being pumped through the machine. Retest. If the proper sanitizer concentration level is not achieved, stop using the machine and contact the appropriate individual(s) to have it repaired. Use a 3-compartment sink to wash, rinse, and sanitize until the machine is repaired.

Cleaning and Sanitizing Food Contact Surfaces SOP (Sample), continued

VERIFICATION AND RECORD KEEPING:

School nutrition employees will record monitoring activities and any corrective action taken on the Food Contact Surfaces Cleaning and Sanitizing Log. The school nutrition manager will verify that school nutrition employees have taken the required temperatures and tested the sanitizer concentration by visually monitoring school nutrition employees during the shift and reviewing, initialing, and dating the Food Contact Surfaces Cleaning and Sanitizing Log. The log will be kept on file for at least 1 year. The school nutrition manager will complete the Food Safety Checklist daily. The Food Safety Checklist is to be kept on file for a minimum of 1 year.

DATE IMPLEMENTED: _____ **BY**: _____

DATE REVIEWED: _____ **BY**: _____

DATE REVISED: _____ **BY**: _____

Lesson 4: Developing a Food Safety Program

Lesson Objectives:

- Describe how to use HACCP to develop a food safety plan for a school nutrition program.
- Describe how to use the Process Approach to help develop a food safety plan for a school nutrition program.
- Explain how to use Standard Operating Procedures and logs as part of a food safety plan for a school nutrition program.

HACCP Principles

	Completed	Comments

1. Conduct a Hazard Analysis

How is the menu item prepared?

Prepared and served without cooking

Prepared and cooked for same day service

Prepared, cooked, held, reheated and served

Check your menu:

What items are similarly prepared?

What items are TCS foods?

Where is the food safety hazard during the process?

Where may a food safety hazard occur for each item?

2. Determine Critical Control Points (CCPs)

Find points in process where hazards can be prevented, eliminated, or reduced to safe levels.

Some foods may have more than one.

3. Establish Critical Limits

Minimum or maximum limit that must be met to prevent, eliminate, or reduce the hazard to a safe level.

4. Establish Monitoring Systems

Determine best way to check procedures and monitor for consistency.

Identify who will monitor and how often.

	Completed	Comments

5. Identify Corrective Actions

Establish steps that must be taken when a critical limit is not met. _____

6. Keep Records

Maintain your HACCP plan. _____

Maintain all documentation during the HACCP creation process. _____

Keep all records: _____

- Monitoring activities _____
- Corrective action _____
- Equipment is in working condition _____
- Working with suppliers _____

7. Review and verify your overall food safety program periodically

Is your plan working as intended? _____

Plan to evaluate: _____

- Monitoring charts _____
- Records _____
- How you performed your hazard analysis _____

Review all records when updating HACCP plan _____

Cooking and Reheating Temperature Log

Instructions: Record product name, time, the two temperatures, and any corrective action taken on this form. The school nutrition manager will verify that school nutrition employees have taken the required cooking temperatures by visually monitoring school nutrition employees and preparation procedures during the shift and reviewing, initialing, and dating this log daily. Maintain this log for a minimum of 1 year.

Date and Time		Food Item	Internal Temperature	Internal Temperature	Corrective Action Taken	Initials	Verified By/ Date

HACCP Analysis Case Study

Instructions: You are the school nutrition manager at Happy Smiles Elementary School observing the workday so you can strengthen your HACCP-based food safety plan. As you read your assigned scenario, walk through the HACCP Principles in your mind. Identify areas of concern or improvement, and write out how you would use the HACCP Principles to strengthen your food safety plan.

Scenario 1: Delivery

As you walk to the back, you see a delivered box of frozen chopped onions and bell peppers sitting in the hallway. The completed Receiving Log has only a time and date upon arrival written on it, and an invoice with a signature is on top of the box. The time on the log was 2 hours ago.

Scenario 2: Preparation and Holding

You then walk into the production area. The menu for the day includes tacos that contain raw, ground beef. The taco beef is in steam table pans heated in the oven. After 20 minutes, the employee removes the taco meat from the oven and places them in hot wells on the serving line.

Scenario 3: Cooling

After serving lunch, there are leftovers. The chili is dumped all into one 6-inch steam table pan and placed on the middle shelf in the walk-in cooler. No temperatures are taken and the log is not used.

Areas of Concern or Improvement	Ways to Use the HACCP Principles to Make a Food Safety Plan
	Conduct a hazard analysis Determine critical control points (CCPs) Establish critical limits Establish monitoring system Identify corrective actions Keep records Review and verify your overall food safety program periodically

The Process Approach Handout

Process Approach Category	Temperature Danger Zone (TDZ)	Important Temperatures	Specific Best Practices	General Best Practices
No Cook	Does not go through the TDZ	Food must be kept at or below 41 °F	• Follow standardized recipes. • Verify food temperatures during cold holding.	• Purchase foods from approved sources. • Receive foods properly. • Store foods properly, including separating food from chemicals. • Use good personal hygiene. • Follow proper handwashing practices. • Prevent cross contamination. • Limit time food is held in the temperature danger zone. • Use a sanitized, calibrated thermometer to take food temperatures. • Serve food so that there is no bare hand contact. Use appropriate utensils, deli paper, or single-use gloves. • Restrict ill employees from working with food.
Same Day Service	Food goes through the TDZ once	• Heat food to the required internal temperature • Cool food using proper cooling methods.	Verify food temperatures during hot holding.	
Complex	Food goes through the TDZ two or more times	*Two times through TDZ* • Cook food to the required internal temperature • Cool food using proper cooling methods *Three times through TDZ* • Cook food • Cool food • Reheat food to 165 °F for at least 15 seconds • Hold food at 135 °F or above	Verify food temperatures during cooking, cooling, reheating, and hot holding.	

Process Approach Category

Instructions: Write 5-10 foods commonly served in your school lunch program. Decide based on the processes used in your school nutrition operation which Process Approach Category the food item should be categorized. Examples are provided to get you started.

Menu Item	No Cook	Same Day Service	Complex Food
Peas and Carrots		X	
Romaine Salad	X		
Lasagna			X
Spaghetti w/ Meat Sauce		X	X

Personal Hygiene SOP (Sample)

PURPOSE: To prevent contamination of food by school nutrition employees.

SCOPE: This procedure applies to school nutrition employees who handle, prepare, or serve food.

KEY WORDS: Personal Hygiene, Cross Contamination, Contamination

INSTRUCTIONS:

1. Train school nutrition employees on using the procedures in this SOP.
2. Follow state or local health department requirements.
3. Follow the Employee Health Policy. (Employee Health Policy is not included in this resource.)
4. Report to work in good health, clean, and dressed in clean attire. Report any illnesses to your manager.
5. Change apron when it becomes soiled.
6. Wash hands properly, frequently, and at the appropriate times.
7. Keep fingernails trimmed, filed, and maintained.
8. Do not wear artificial fingernails and fingernail polish.
9. Wear single-use gloves if artificial fingernails or fingernail polish are worn.
10. Do not wear any jewelry except for a plain ring such as a wedding band.
11. Treat and bandage wounds and sores immediately. When hands are bandaged, single-use gloves must be worn.
12. Cover a lesion containing pus with a bandage. If the lesion is on a hand or wrist, cover with an impermeable cover such as a finger cot or stall and a single-use glove. Show a supervisor any lesion before working.
13. Eat, drink, or chew gum only in designated break areas where food or food contact surfaces may not become contaminated.
14. Taste food the correct way:
    - Place a small amount of food into a separate container.
    - Step away from exposed food and food contact surfaces.
    - Use a teaspoon to taste the food. Remove the used teaspoon and container to the dish room. Never reuse a spoon that has already been used for tasting.
    - Wash hands immediately.
15. Wear suitable and effective hair restraints while in the kitchen.

Personal Hygiene SOP (Sample), continued

MONITORING:

1. The kitchen supervisor will inspect employees when they report to work to be sure that each employee is following this SOP.
2. The kitchen supervisor will monitor that all school nutrition employees are adhering to the personal hygiene policy during all hours of operation.

CORRECTIVE ACTION:

1. Retrain any school nutrition employee found not following the procedures in this SOP.
2. Discard affected food.

VERIFICATION AND RECORD KEEPING:

The school nutrition manager will verify that school nutrition employees are following this SOP by visually observing the employees during all hours of operation. The school nutrition manager will complete the Food Safety Checklist daily. School nutrition employees will record any discarded food on the Damaged or Discarded Product Log. The Food Safety Checklist and Damaged or Discarded Product Logs are to be kept on file for a minimum of 1 year.

DATE IMPLEMENTED: _____ **BY**: _____

DATE REVIEWED: _____ **BY**: _____

DATE REVISED: _____ **BY**: _____

Food Safety Checklist

Date _____ Observer _____

Directions: Use this checklist daily. Determine areas in your operations requiring corrective action. Record corrective action taken and keep completed records in a notebook for future reference.

PERSONAL HYGIENE	Yes	No	Corrective Action
• Employees wear clean and proper uniform including shoes.	☐	☐	_____
• Effective hair restraints are properly worn.	☐	☐	_____
• Fingernails are short, unpolished, and clean (no artificial nails).	☐	☐	_____
• Jewelry is limited to a plain ring, such as wedding band.	☐	☐	_____
• Hands are washed properly, frequently, and at appropriate times.	☐	☐	_____
• Burns, wounds, sores or scabs, or splints and water-proof bandages on hands are bandaged and completely covered with a single-use glove while handling food.	☐	☐	_____
• Eating, drinking, and chewing gum are allowed only in designated areas.	☐	☐	_____
• Employees use disposable tissues when coughing or sneezing and then immediately wash hands.	☐	☐	_____
• Employees appear in good health.	☐	☐	_____
• Hand sinks are unobstructed, operational, and clean.	☐	☐	_____
• Hand sinks are stocked with soap, disposable towels, and warm water.	☐	☐	_____
• A handwashing reminder sign is posted.	☐	☐	_____
• Employee restrooms are operational and clean.	☐	☐	_____

FOOD PREPARATION	Yes	No	Corrective Action
• All food stored or prepared in facility is from approved sources.	☐	☐	_____
• Food equipment utensils and food contact surfaces are properly washed, rinsed, and sanitized before every use.	☐	☐	_____
• Frozen food is thawed under refrigeration, cooked to proper temperature from frozen state, or in cold running water.	☐	☐	_____
• Thawed food is not refrozen.	☐	☐	_____
• Preparation is planned so ingredients are kept out of the temperature danger zone to the extent possible.	☐	☐	_____
• Food is tasted using the proper procedure.	☐	☐	_____
• Procedures are in place to prevent cross contamination.	☐	☐	_____
• Food is handled with suitable utensils, such as single-use gloves or tongs.	☐	☐	_____
• Food is prepared in small batches to limit the time it is in the temperature danger zone.	☐	☐	_____

• Clean reusable towels are used only for sanitizing equipment and surfaces and not for drying hands, utensils, or floor.	☐	☐	_____
• Food is cooked to the required safe internal temperature for the appropriate time. The temperature is tested with a calibrated food thermometer.	☐	☐	_____
• The internal temperature of food being cooked is monitored and documented.	☐	☐	_____

HOT HOLDING	Yes	No	Corrective Action
• Hot holding unit is clean.	☐	☐	_____
• Food is heated to the required safe internal temperature before placing in hot holding.	☐	☐	_____
• Hot holding units are not used to reheat time/temperature control for safety foods.	☐	☐	_____
• Hot holding unit is pre-heated before hot food is placed in unit.	☐	☐	_____
• Temperature of hot food being held is at or above 135 °F.	☐	☐	_____
• Food is protected from contamination.	☐	☐	_____

COLD HOLDING	Yes	No	Corrective Action
• Refrigerators are kept clean and organized.	☐	☐	_____
• Temperature of cold food being held is at or below 41 °F.	☐	☐	_____
• Food is protected from contamination.	☐	☐	_____

REFRIGERATOR, FREEZER, AND MILK COOLER	Yes	No	Corrective Action
• Thermometers are available and accurate.	☐	☐	_____
• Temperature is appropriate for pieces of equipment.	☐	☐	_____
• Food is stored at least 6 inches above the floor or in walk-in cooling equipment.	☐	☐	_____
• Refrigerator and freezer units are clean and neat.	☐	☐	_____
• Proper chilling procedures are used.	☐	☐	_____
• All food is properly wrapped, labeled, and dated.	☐	☐	_____
• The FIFO (First In, First Out) method of inventory management is used.	☐	☐	_____
• Ambient air temperature of all refrigerators and freezers is monitored and documented at the beginning and end of each shift.	☐	☐	_____

FOOD STORAGE AND DRY STORAGE	Yes	No	Corrective Action
• Temperatures of dry storage area is between 50 °F and 70 °F or state public health department requirement.	☐	☐	_____
• All food and paper supplies are stored at least 6 inches above the floor.	☐	☐	_____
• All food is labeled with name and received date.	☐	☐	_____
• Open bags of food are stored in containers with tight fitting lids and labeled with common name.	☐	☐	_____

• The FIFO (First In, First Out) method of inventory management is used.	☐	☐	_____
• There are no bulging or leaking canned goods.	☐	☐	_____
• Food is protected from contamination.	☐	☐	_____
• All food surfaces are clean.	☐	☐	_____
• Chemicals are clearly labeled and stored away from food and food-related supplies.	☐	☐	_____
• There is a regular cleaning schedule for all food surfaces.	☐	☐	_____
• Food is stored in original container or a food grade container.	☐	☐	_____

CLEANING AND SANITIZING	Yes	No	Corrective Action
• Three-compartment sink is properly set up for ware washing.	☐	☐	_____
• Dishmachine is working properly (gauges and chemicals are at recommended levels).	☐	☐	_____
• Water is clean and free of grease and food particles.	☐	☐	_____
• Water temperatures are correct for washing and rinsing.	☐	☐	_____
• If heat sanitizing, the utensils are allowed to remain immersed in 171 °F water for 30 seconds.	☐	☐	_____
• If using a chemical sanitizer, it is mixed correctly and a sanitizer strip is used to test chemical concentration.	☐	☐	_____
• Smallware and utensils are allowed to air dry.	☐	☐	_____
• Wiping cloths are stored in sanitizing solution while in use.	☐	☐	_____

UTENSILS AND EQUIPMENT	Yes	No	Corrective Action
• All small equipment and utensils, including cutting boards and knives, are cleaned, sanitized, and allowed to air dry before use.	☐	☐	_____
• Work surfaces are cleaned and sanitized before use.	☐	☐	_____
• Thermometers are cleaned and sanitized after each use.	☐	☐	_____
• Thermometers are calibrated on a routine basis.	☐	☐	_____
• Can opener is cleaned and sanitized before use.	☐	☐	_____
• Drawers and racks are cleaned and sanitized before use.	☐	☐	_____
• Clean utensils are handled in a manner to prevent contamination of areas that will be in direct contact with food or a person's mouth.	☐	☐	_____

LARGE EQUIPMENT	Yes	No	Corrective Action
• Food slicer is cleaned and sanitized after every use.	☐	☐	_____
• Exhaust hood and filters are clean.	☐	☐	_____

GARBAGE STORAGE AND DISPOSAL	Yes	No	Corrective Action
• Kitchen garbage cans are clean and kept covered.	☐	☐	_____
• Garbage cans are emptied as necessary, but at least daily.	☐	☐	_____
• Boxes and containers are removed from site.	☐	☐	_____
• Loading dock and area around dumpster are clean, and dumpsters have tight fitting lids.	☐	☐	_____

PEST CONTROL

	Yes	No	Corrective Action
• Outside doors have screens, are well-sealed, and are equipped with self-closing devices.	☐	☐	_____
• No evidence of pests is present.	☐	☐	_____
• There is a regular schedule of pest control by a licensed pest control operator.	☐	☐	_____

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Appendix

HACCP Analysis Case Study Possible Answers

Scenario 1: Delivery As you walk to the back, you see a delivered box of frozen chopped onions and bell peppers sitting in the hallway. The completed Receiving Log has only a time and date upon arrival written on it, and an invoice with a signature is on top of the box. The time on the log was 2 hours ago.	
Areas of Concern or Improvement	**Ways to Use the HACCP Principles to Make a Food Safety Plan**
Upon delivery, frozen onions and bell peppers were not properly inspected for safety. No delivery temperature was recorded, and afterward, the food was not properly handled to ensure safety. Food would have to be discarded.	Determine critical control points (CCPs). • Food needs to be delivered at correct temperatures. • Food should be stored immediately to preserve temperature safety. Establish critical limits. • Refrigerated food should be delivered at 41 °F or below. • Frozen food should be frozen solid with no signs of thawing, such as large ice crystals or wet boxes. Establish monitoring system. • Allot time for employee to receive food, check temperatures and for other signs of contamination before receiving, and record on log. • Allot time for employee to put away delivery correctly to ensure proper inventory storage and rotation. Identify corrective actions. • Reject food delivered at incorrect temperatures and record this. Keep records. • Receiving Foods log Review and verify your overall food safety program periodically. • Manager should check the logs and review the invoices to ensure proper temperature control is being monitored.

Scenario 2: Preparation and Holding You then walk into the production area. The menu for the day includes tacos that contain raw, ground beef. The taco beef is in steam table pans heated in the oven. After 20 minutes, the employee removes the taco meat from the oven and places them in hot wells on the serving line.	
Areas of Concern or Improvement	**Ways to Use the HACCP Principles to Make a Food Safety Plan**
Employee did not take the final cooking temperature of the beef before putting it on the serving line.	Determine critical control points (CCPs). • Taco meat needs to reach the proper reheating temperature, as it is a pre-cooked product. Establish critical limits. • Beef should reach 155 °F for at least 15 seconds. • Taco beef should be held at 135 °F on the serving line. Establish monitoring system. • Employee needs to take and record the temperature of the beef after it is cooked and before it goes on the serving line. Identify corrective actions. • If taco beef does not reach 155 °F, it should be returned to the oven until the correct internal temperature is met. • If taco meat does not stay above 135 °F, on the serving line, reheat food to 165 °F for at least 15 seconds. Keep records. • Cooking and Reheating Foods log • Hot Holding Temperature log Review and verify your overall food safety program periodically. • Manager should review log to ensure cooking, reheating, and holding temperatures are taken and recorded.

Scenario 3: Cooling After serving lunch, there are leftovers. The chili is dumped all into one 6 inch steam table pan and placed on the middle shelf in the walk-in cooler. No temperatures are taken and the log is not used.	
Areas of Concern or Improvement	**Ways to Use the HACCP Principles to Make a Food Safety Plan**
Chili should be placed in shallow dishes and cooled on the top shelf of the refrigerator. The temperature of the food needs to be monitored and recorded during cooling.	Determine critical control points (CCPs). • Food needs to stay within proper cooling time and temperature parameters to be safe. Establish critical limits. • Cool hot food from 135 °F to 70 °F within 2 hours. • Cool hot food within a total of 6 hours from 135 °F to 41 °F (if step one is achieved). Establish monitoring system. • Employee will take temperature of foods at designated times to ensure food is cooling correctly. Employee will record these temperatures and times. Identify corrective actions. • If either cooling step is not achieved, reheat the food to 165 °F for 15 seconds and restart the cooling process, or discard. Keep records. • Cooling Foods log Review and verify your overall food safety program periodically. • Manager should check the logs to make sure methods used are cooling food properly. Check employee schedules to ensure there is time for an employee to monitor cooling food.

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