

Food Safety

For **Summer** Food Service Programs



Developed by
National Food Service Management Institute through a Cooperative Agreement
with United States Department of Agriculture, Food and Nutrition Service



U.S. Department of Agriculture
Food and Nutrition Service

National Food Service Management Institute

This project has been funded with Federal funds from the U.S. Department of Agriculture, Food and Nutrition Service under a cooperative agreement with The National Food Service Management Institute, at The University of Mississippi.

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Suggested Reference Citation: National Food Service Management Institute. (2003). *Food safety for summer food service programs*. University, MS: National Food Service Management Institute. ©2003, National Food Service Management Institute, The University of Mississippi
Publication Number ET 42-03



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Introduction

Serving safe food to children or adults is a top priority in any foodservice operation. Summer Food Service Programs are often located outside in parks or camps where there are no kitchen facilities. It is especially important to guard the safety of foods that are being served in these situations and to find ways to keep foods out of the temperature danger zone. Each foodservice worker can make a big difference in the safety of food – in both positive as well as negative ways. Foodservice staff and volunteers have many opportunities throughout the day to ensure that food is safe to eat.

For example, every action in foodservice can potentially affect the safety of food, either during purchasing, storage, preparation, holding, service or cleanup. Poor personal hygiene, allowing food to remain in the temperature danger zone too long, and cross-contamination are the three main causes of a foodborne illness. Foodservice staff and volunteers should understand that a foodborne illness can occur in any foodservice operation and that they are the single most critical factor in keeping the foodservice operation safe.

Customers, both children and adults, must also take a proactive role in the prevention of a foodborne illness. Properly washing hands before eating a meal and using utensils for self-serve items such as bread or rolls are simple food safety measures that everyone can practice.

The goal of this resource is to help staff and volunteers learn ways to provide safe foods and teach children basic food safety practices. Content presented in this resource reflects an abbreviated version of *Serving It Safe, 2nd Edition* (2002). This resource should be adapted to include State and local public health requirements and school district policies and procedures.

How to Use the Materials

What's Included in the Materials:

Three lessons designed for the adult learner covering:

- Personal Hygiene
- Temperatures
- Cross-Contamination

The lessons are simple yet very important. Emphasize the information that will meet the needs of program staff and volunteers. Reinforce the food safety messages whenever possible. Activities are included in each lesson to help reinforce the lesson content. Each lesson contains activities for children designed to teach them basic food safety practices.

Purpose: The statement of purpose clearly identifies the focus of the lesson and the reason for teaching it.

Supporting Materials: A list of materials, including supplies and handouts, needed to teach the lesson is included.

Educational Objectives: Each lesson includes educational objectives written as learner outcomes. Progress in reaching objectives can be determined through observation, listening during training discussions, and noting improvement in food safety practices of staff and volunteers.

Key Words: Definitions for common food safety terms are included.

Lesson Content: Contains important food safety information and provides guidance for teaching the information.

Activities for Staff and Volunteers: Activities that are designed to make the training more interesting and to reinforce the food safety messages. Several activities are included. Choose the activities that best suit local needs. If time permits, all activities may be implemented.

Focus on Children: Age-specific activities for children are included in each lesson. Choose from the activities that are most appropriate for local needs.

Handouts: Master copies for all the suggested handouts are included at the end of each lesson in the section titled Handouts. The lessons include handouts for staff and volunteers and for children. Make copies of the handouts for each adult training participant and for each child.

Checklists: Each lesson contains a checklist for staff and volunteers. The checklists are designed to provide reinforcement of the lesson and to allow each training participant to evaluate what he/she is currently doing properly and what he/she needs to do differently in the future.

Posters: NFSMI food safety posters can be displayed in the facility to reinforce key ideas. Mini posters displaying information regarding handwashing, the temperature danger zone, and cross-contamination reinforce the food safety messages provided in the lessons. Additional copies of the Food Safety mini-posters in both English and Spanish are located on the NFSMI Web site at: <http://www.nfsmi.org/Information/postindx.htm>.



Personal Hygiene

Lesson One: Personal Hygiene

Purpose

The purpose of Lesson One is to teach Summer Food Service Program staff and volunteers to use the highest standards for personal hygiene and to teach children participating in the Summer Food Service Program why handwashing is important and how to wash their hands.

Supporting Materials for this Lesson

Supplies

For all learners:

- Paper towels
- Liquid soap
- Handwashing sink
- Stop watch
- Pencils

For children's lessons:

- Cooking oil
- Cinnamon
- Measuring spoons (teaspoon and tablespoon)
- Crayons

Handouts

For staff and volunteers:

- Handout 1: Personal Hygiene Checklist
- Handout 2: How to Wash Hands
- Handout 3: Wash Your Hands Before...Wash Your Hands After
- Handout 4: Handwashing Word Search Game

For children:

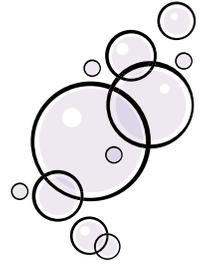
- Handout 2: How to Wash Hands
- Handout 4: Handwashing Word Search Game
- Handout 5: Drown A Germ...Wash Your Hands Stickers
- Handout 6: I Should Wash My Hands When....
- Handout 7: Wash Your Hands Well With Soap And Warm Water Coloring Page

NFSMI Posters

- Personal Hygiene
- Personal Appearance
- Drown a Germ...Wash Your Hands!
- ALWAYS Wash Hands...
- Hand Washing



Educational Objectives



At the completion of this lesson, staff and volunteers will be able to:

- Identify at least six guidelines for good personal hygiene
- Identify when hands should be washed
- Demonstrate the proper handwashing technique
- Encourage children to use the proper handwashing technique

Key Words

Personal Hygiene – Health habits that include clean hair, body, and teeth; clean clothes and shoes; correct handwashing; and maintaining good health.

Foodborne Illness – A disease carried to people by food or water containing harmful substances.

Bacteria – The plural of the Latin word “bacterium.” A bacterium is a living organism made up of a single cell. Bacteria and other microorganisms are everywhere. Bacteria are considered “vegetative” because they can grow and reproduce. Under certain conditions, they will reproduce very rapidly. Some bacteria, called pathogens, cause disease. Others discharge poisons, called toxins, as they multiply. These toxins can be very dangerous to humans.

Cross-Contamination – The transfer of harmful microorganisms from a surface (hand or food contact) to food by hands, cloth towels and utensils, or from one food to another.

Microorganisms – Molds, bacteria, and yeasts that grow in and on food and can make food unsafe.

Clean – No visible sign of soil.

Ready-to-Eat-Food – Food that is ready-to-eat without washing, cooking, or additional preparation and is generally consumed in that form. Some examples include raw, washed, cut fruits and vegetables; deli meats; and cheeses.

Lesson Content

Personal Hygiene

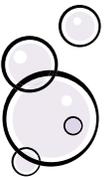
Always start a training program with an activity or question. This helps the participants focus on the topic. Begin the lesson with a sharing session. Ask the group to share some examples of personal experiences that demonstrate examples of poor personal hygiene. If participants are reluctant to begin sharing personal experiences, here are some examples of poor personal hygiene that will help get the discussion started. Ask, “Have you ever...?”

- Noticed a server at a restaurant returning to work without washing hands when leaving the restroom
- Noticed a co-worker with a very bad cold preparing food in the kitchen
- Observed an employee touching ready-to-eat foods with his/her bare hands when replenishing the salad bar items
- Observed children eating without washing their hands

Each Summer Food Service Program employee and volunteer must have the highest standards for personal hygiene. Guidelines for good personal hygiene should be reviewed with each employee and volunteer and posted as reminders.

Guidelines for Good Personal Hygiene

- Wash hands properly, frequently, and at appropriate times.
- Keep hair and body clean by bathing daily.
- Keep fingernails clean, unpolished, and trimmed short (avoid artificial fingernails).
- Wear clean clothing and/or apron.
- Wear a hair restraint.
- Avoid wearing jewelry.
- Wash hands before putting on single-use gloves, and change gloves frequently.
- Avoid bare-hand contact with ready-to-eat food.
- Treat and bandage wounds and sores. When hands are bandaged, single-use gloves should be worn at all times. In some cases, staff and volunteers should perform other non-food related tasks until wound heals.



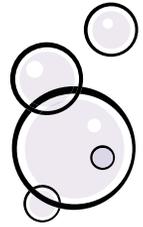
Note: Be sure to follow all State and local public health department or State agency regulations regarding personal hygiene requirements.

Activity 1 Staff and Volunteers

Personal Hygiene Check-Up

This activity will enable staff, volunteers, and managers to evaluate personal hygiene practices and to identify areas where they need improvement.

Distribute Handout 1: **Personal Hygiene Checklist** located at the end of this lesson. Have the staff and volunteers fill out the checklist. Discuss in a general way the results of this activity and reinforce the need to follow each of these personal hygiene strategies to keep food safe.



Handwashing

Handwashing is one of the most critical aspects of good personal hygiene in foodservice. Clean hands are necessary to prevent contamination of food during preparation and service.

Cross-contamination is a common cause of foodborne illness. Hand-to-food cross-contamination occurs when contaminated hands handle cooked or ready-to-eat foods.

Microorganisms are found throughout the body:

- On hair, skin, and clothing
- In the mouth, nose, and throat
- In the intestinal tract
- On open wounds, sores, scabs, or scars

These microorganisms often end up on the hands where they can easily be spread to food.

Note: As reminders, display the posters

- Personal Hygiene
- Personal Appearance
- Drown a Germ...Wash Your Hands!
- ALWAYS Wash Hands...
- Hand Washing

In locations such as

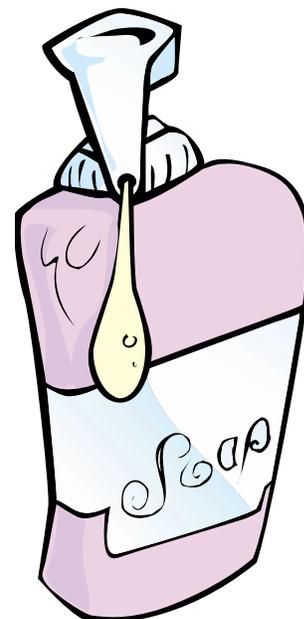
- Restroom/locker room
- Handwashing sink area
- Food preparation area, if applicable

Wash hands often whenever hands are visibly dirty and before:

- Beginning food preparation
- Putting on disposable gloves
- Serving food to children

Wash hands after:

- Arriving at work and after breaks
- Using the restroom and then again at the handwashing sink
- Eating, drinking, smoking, or chewing tobacco or gum
- Using the telephone
- Using a handkerchief or a tissue
- Handling inventory
- Handling raw food
- Touching or scratching areas of the body such as ears, mouth, nose, or hair
- Coughing or sneezing
- Clearing or cleaning tables
- Clearing, scraping, or washing dirty plates or utensils
- Handling garbage
- Handling money
- Touching soiled aprons, clothing, or dirty surfaces
- Using cleaning chemicals



Activity 2 Staff and Volunteers

How to Wash Hands

Distribute Handout 2: **How to Wash Hands** and demonstrate for the group the correct way to wash hands. Have each participant practice correctly washing his/her hands.

Distribute Handout 3: **Wash Your Hands Before... Wash Your Hands After...** to participants as a reminder. Post copies in the facility.

Note: In Summer Food Service Programs that are held outside, soap and water may not be available for washing hands. If soap and water are not available, consider using alcohol-based wipes or gel formulas to clean hands. Follow State or local health department guidelines for using these products. Remember, however, that the most effective way to wash hands is to use soap, water, and paper towels. Use a designated handwashing sink that is not used for food preparation.

Activity 3 Staff and Volunteers

Handwashing Word Search Game

Distribute Handout 4: **Handwashing Word Search Game** and have the participants complete the word search game. Reinforce the meaning of each of the words related to handwashing and food safety that they find in the word search.

Focus on Children

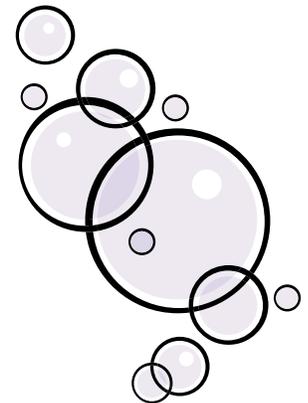
It is very important to teach children to wash their hands and to provide an opportunity for them to wash their hands at appropriate times. Explain to them that washing their hands will help them to stay healthy and keep them from spreading and receiving germs.

Hands may look clean but may not have been properly washed.

Children learn by example; let them observe good handwashing techniques.

When Children Should Wash Hands

- Upon arrival at the facility
- Immediately before and after eating
- After using restroom
- Before eating a meal or snack
- After playing on the playground
- After handling pets, pet cages, or other pet objects
- After blowing nose
- Whenever hands are visibly dirty
- Before going home



Activity 1 Children

How to Wash Hands (This activity is appropriate for children of all ages.)

Distribute Handout 2: **How to Wash Hands** found at the end of this lesson. Then demonstrate for the children the correct way to wash their hands. Have each child correctly wash his/her hands.

In order to estimate the 20 seconds needed for proper handwashing, have the children sing one full verse of “Old MacDonald” or have them make up their own song about handwashing that lasts 20 seconds.

Once each child has washed his/her hands, give out the stickers on Handout 5, **Drown a Germ... Wash Your Hands** located at the end of this lesson. The stickers are formatted so they can be made by copying onto commercially available stick-on labels that have a 2.5" X 2.5" circle format.

Distribute Handout 6: **I Should Wash My Hands...** to the children to remind them when it is appropriate to wash their hands. Post a copy of this handout in the facility.

Activity 2 Children

An Experiment – Soapy Solutions

(This activity is appropriate for children in grades 4-6.)

Materials Needed:

- Cooking oil
- Cinnamon
- Access to sink to wash hands
- Soap
- Paper towels
- Measuring spoons (teaspoon and tablespoon)

Getting Ready:

Ask for three children to volunteer for the experiment.

Procedure:

For the volunteers:

1. Rub 1 tablespoon of cooking oil all over your hands until completely coated. Sprinkle 1 teaspoon of cinnamon on hands and rub it around until it's evenly distributed. The cinnamon will be like bacteria. It's all over!

2. Wash hands as follows, **rubbing them briskly for 20 seconds:**

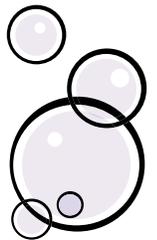
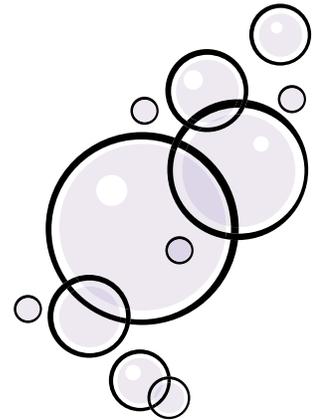
- Volunteer #1: wash hands with cold water and no soap
- Volunteer #2: wash hands with warm water and no soap
- Volunteer #3: wash hands with warm water and soap

Have the other children:

- Observe the three handwashing methods.
- Discuss what was observed.
- Tell which method worked best and why.

Ask the children to share what they learned about handwashing with their family.

Source: The Partnership for Food Safety Education. *Your Game Plan for Food Safety, A Food Safety Education Program for 4th, 5th, and 6th Grade Classrooms.* Retrieved January 29, 2003 from <http://fightbac.org/pdf/experiments.pdf>



Activity 3 Children

Wash Your Hands Well With Soap and Warm Water Coloring Page (This activity is appropriate for children in grades K-3.)

Distribute Handout 7: **Wash Your Hands Well With Soap and Warm Water** to the children and allow them time to color the picture. Talk to them about handwashing and how important it is for everyone to wash their hands correctly.

Activity 4 Children

Handwashing Word Search Game (This activity is appropriate for children in grades 4-6.)

Distribute Handout 4: **Handwashing Word Search Game** to the children and have them complete the word search game. Reinforce the meaning of each of the words related to handwashing and food safety that they find in the word search.



Lesson One



Handouts

Personal Hygiene Checklist for Staff and Volunteers

Complete the following checklist to see how your personal hygiene measures up.

	OK	Need to Improve
1. I wash hands properly, frequently, and at appropriate times.	<input type="checkbox"/>	<input type="checkbox"/>
2. I keep hair and body clean by bathing daily.	<input type="checkbox"/>	<input type="checkbox"/>
3. I wear clean clothing/uniform and/or apron.	<input type="checkbox"/>	<input type="checkbox"/>
4. I wear a hair restraint.	<input type="checkbox"/>	<input type="checkbox"/>
5. My fingernails are short, unpolished, and clean.	<input type="checkbox"/>	<input type="checkbox"/>
6. Jewelry is not worn or is limited to plain wedding band.	<input type="checkbox"/>	<input type="checkbox"/>
7. My hands are washed before putting on single-use gloves.	<input type="checkbox"/>	<input type="checkbox"/>
8. My wounds and sores are bandaged and single-use gloves are worn, at all times.	<input type="checkbox"/>	<input type="checkbox"/>
9. I avoid bare-hand contact with ready-to-eat food.	<input type="checkbox"/>	<input type="checkbox"/>
10. I eat and drink or chew gum only in designated areas.	<input type="checkbox"/>	<input type="checkbox"/>
11. I wash my hands after coughing or sneezing.	<input type="checkbox"/>	<input type="checkbox"/>

How to Wash Hands

Wash your hands for 20 seconds with soap and warm water to make sure you get rid of germs.

Follow the six easy steps to make sure your hands are clean.

1. Wet... hands using warm running water.
2. Soap... lather hands with soap up to the elbows; rub hands together for 20 seconds.
3. Scrub... wash backs of hands, wrists, between fingers, and under fingernails.
(Use a fingernail brush as specified by local health department.)
4. Rinse... hands under warm running water.
5. Dry... hands with paper towel.
6. Water off... turn off running water with a paper towel, not bare hands.



Note: In Summer Food Service Programs that are held outside, soap and water may not be available for washing hands. If soap and water are not available, consider using alcohol-based wipes or gel formulas to clean hands. Follow State or local health department guidelines for using these products. Remember, however, that the most effective way to wash hands is to use soap, water, and paper towels. Use a designated handwashing sink that is not used for food preparation.

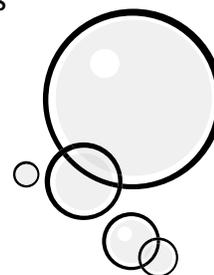
Wash Your Hands Before...

- Beginning food preparation
- Putting on disposable gloves
- Serving food to children

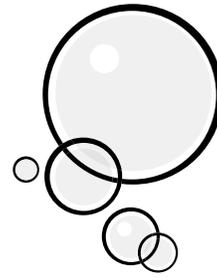
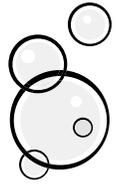


Wash Your Hands Often During Food Preparation and After...

- Arriving at work and after breaks
- Using the restroom and then again at the handwashing sink
- Eating, drinking, smoking, or chewing tobacco or gum
- Using the telephone
- Using a handkerchief or a tissue
- Handling inventory
- Handling raw food
- Touching or scratching areas of the body, such as ears, mouth, nose, or hair
- Coughing or sneezing
- Clearing or cleaning tables
- Clearing, scraping, or washing dirty plates or utensils
- Handling garbage
- Handling money
- Touching soiled aprons, clothing, or dirty surfaces
- Using cleaning chemicals



Handwashing Word Search Game



Find and circle these words that relate to handwashing:

- | | | |
|-------|-------|-------------|
| Wet | Hands | Germs |
| Soap | Dirt | Fingers |
| Scrub | Clean | Fingernails |
| Rinse | Dry | Water |

A	Z	C	D	F	I	R	S	O	A	P	P	O	F
H	I	P	I	R	S	A	Z	Q	K	B	N	I	R
A	E	F	R	I	C	C	J	W	X	L	N	M	I
N	G	H	T	I	R	E	A	W	O	G	P	K	N
D	R	Y	O	L	H	I	R	J	E	K	M	L	S
S	I	K	W	N	P	E	O	R	A	T	V	C	E
Z	J	G	E	N	T	H	N	K	W	D	E	J	P
Q	Y	E	L	A	O	A	H	Q	V	T	F	L	Y
M	Q	R	W	E	I	Y	P	G	Y	I	P	O	K
W	E	M	U	L	P	K	F	I	N	G	E	R	S
R	O	S	S	C	R	U	B	C	S	T	Z	A	Q

Answer Key:

Q	A	Z	T	S	C	B	U	R	C	S	S	O	R
S	R	E	G	N	I	F	K	P	L	U	M	E	W
K	O	P	I	Y	G	P	Y	I	E	W	R	Q	M
Y	L	F	T	V	Q	H	A	O	A	L	E	Y	Q
P	J	E	D	W	K	N	H	T	N	E	J	I	Z
E	C	V	T	A	R	O	E	P	N	W	K	I	S
S	L	M	K	E	J	R	I	H	L	O	Y	R	D
N	K	P	G	O	W	A	E	R	I	T	H	G	N
I	M	N	L	X	W	J	C	C	I	R	F	E	A
R	I	N	B	K	Q	Z	A	S	R	I	P	I	H
F	O	P	A	O	S	R	I	F	D	C	Z	C	A

I Should Wash My Hands...



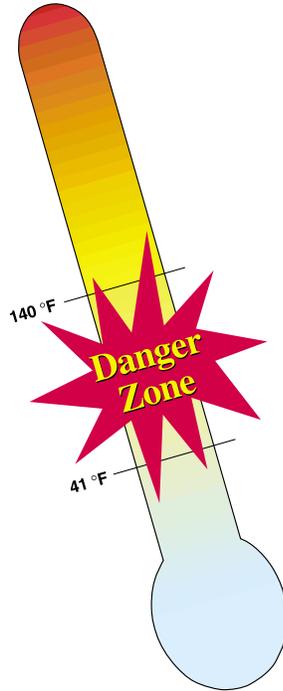
- When I arrive at _____ (school, camp, the community center)
- Immediately before and after I eat
- After using the restroom
- Before I eat a meal or snack
- After playing on the playground
- After handling pets, pet cages, or other pet objects
- After blowing my nose
- Whenever my hands are dirty
- Before I go home



Wash Your Hands Well With Soap And Warm Water.

Old MacDonald
had a farm...





Temperatures

Lesson Two: Temperatures

Purpose

The purpose of Lesson Two is to teach Summer Food Service program staff and volunteers the importance of moving foods quickly through the temperature danger zone and how to properly use a thermometer.

Supporting Materials for this Lesson

Supplies

For staff and volunteers:

- Thermometers (enough so that every participant can practice taking temperatures)
- Potato salad
- Milk carton
- Juice carton
- Sandwich with filling
- Cooked hamburger

For children's lessons:

- Crayons

Handouts

For staff and volunteers:

- Handout 1: Minimum Safe Internal Temperatures
- Handout 2: Tips for Moving Food Quickly Through the Danger Zone
- Handout 3: Checklist for Using a Food Thermometer

For children:

- Handout 4: Thermy™ Coloring Page

NFSMI Posters

- Keep Hot Food Hot! Cold Foods Cold!
- Use That Thermometer!



Educational Objectives

At the completion of this lesson, staff and volunteers will be able to:

- Identify the temperature danger zone
- Explain why it is important to move food quickly through the danger zone
- Explain how to move food quickly through the danger zone
- Demonstrate how to properly use a thermometer
- Introduce children to the importance of food thermometers

Key Words

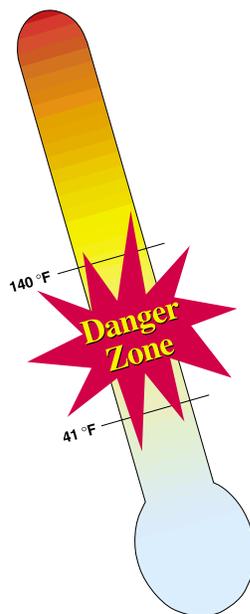
Bacteria – The plural of the Latin word “bacterium.” A bacterium is a living organism made up of a single cell. Bacteria and other microorganisms are everywhere. Bacteria are considered “vegetative” because they can grow and reproduce. Under certain conditions, they will reproduce very rapidly. Some bacteria, called pathogens, cause disease. Others discharge poisons, called toxins, as they multiply. These toxins can be very dangerous to humans.

Microorganisms – Molds, bacteria, and yeasts that grow in and on food and can make food unsafe.

Clean - No visible sign of soil.

Danger Zone - The temperature range above 41 °F and below 140 °F.

Sanitize - To use either a chemical or heat on a clean surface to reduce the number of bacteria or other contaminants to a level that is not harmful.



Lesson Content

The Danger Zone

Cooking food to a safe internal temperature is an essential step in the food safety process. When food is to be served hot, it should be kept in hot holding equipment above 140 °F. Cold food should be kept below 41 °F in a refrigeration unit or surrounded by ice. When foods are in the danger zone, harmful micorganisms that cause contamination can grow very rapidly. Keep the internal temperature of food below 41 °F or above 140 °F.

Note: Be sure to follow all State and local public health department or State agency regulations regarding temperatures.

Distribute Handout 1: **Minimum Safe Internal Temperatures** and discuss the importance of following these temperature guidelines.

Moving Foods Quickly Through the Danger Zone

It is very important to move foods quickly through the danger zone to prevent the growth of harmful micorganisms. Hot foods that are to be chilled must be chilled rapidly. Bulk hot foods (amounts greater than 1/2 gallon or 2 pounds) can be cooled more rapidly by putting the food into shallow pans in the refrigerator and stirring frequently. An ice bath can be used to speed the cooling process. Fill a clean and sanitized sink with ice. Add water to fill air spaces. Remove food to be chilled from the heat source. Insert container with food into ice bath so food is level with the ice. Stir every 10-15 minutes. Drain water and add ice as it melts. Use a thermometer to measure the temperature until it reaches 41 °F. Then place the food in the refrigerator.

Foods can also be chilled rapidly using a blast chiller. The blast chilling process uses a high-powered refrigeration system to blast cold air over the food product at high speed reducing the temperature quickly and safely.

Remember, cold foods must be kept cold below 41 °F. When reheating previously cooked food, be sure to bring to an internal temperature of 165 °F for 15 seconds. Use a thermometer to determine the internal temperature of food at every stage in the foodservice process: receiving, storage, preparation, cooking, holding, serving, reheating, and chilling.

Note: During any point of the food production process when food could be in the temperature danger zone, the internal temperature must be documented. Follow State and local public health department recommendations to control time and temperature at each stage of food production.

Follow these tips for moving food quickly through the danger zone:

- Chill heated or cooked bulk foods in shallow pans
- Stir frequently
- Stir with an ice paddle
- Use an ice bath
- Take and write down internal temperatures often
- Use a blast chiller, if available

NEVER cool food at room temperature. Stirring accelerates cooling and helps to ensure that cold air reaches all parts of the food. Some manufacturers make cold paddles just for cooling food; they can be filled with water and frozen. If a cold paddle is used to stir a food, it should be washed and sanitized after use. Do not overpack the refrigerator; cold air must circulate to keep food safe.

Food Safety Tips for Hot and Cold Foods

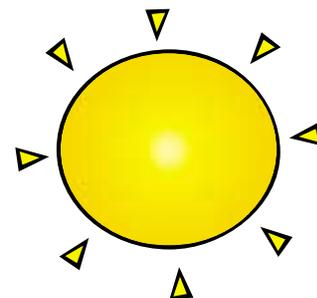
Foods are sometimes brought to the serving site in bulk and served to children. In other cases, individual lunch bags are given to the children. Here are some suggestions for keeping hot and cold foods safe.

Hot Foods

- Use hot-holding equipment whenever possible
- Use insulated containers to transport food

Cold Foods

- Pack individual sandwiches in insulated lunch bags with a frozen gel pack OR with a frozen juice box.
- Freeze sandwiches overnight. They will thaw by lunchtime, but will stay cold and safe.
- Use a cooler to keep perishable foods cold packed with several inches of ice, ice packs, or containers of frozen water.
- Pack perishable foods directly from the refrigerator or freezer into the cooler.
- Pack beverages in one cooler and perishable foods in another.
- Store the cooler in a building, if possible or in a shady spot out of the sun.
- Keep the cooler closed as much as possible and cover it for additional insulation.
- Place an appliance thermometer inside the cooler to check the temperature.
- Store all foods in airtight containers to avoid contact with any melting ice water.
- Keep all perishable foods cold right up until serving time.



Hot and Cold Foods

- Keep hot foods and cold foods at appropriate temperatures.
- Check and write down temperatures of foods before serving.

Distribute Handout 2: **Tips for Moving Food Quickly through the Danger Zone** to reinforce the importance of chilling foods rapidly. Post the handout in the facility.

Guidelines for Using a Thermometer

The two most common types of food thermometers used to determine the internal temperature of foods are:

- A bi-metallic stemmed thermometer with an instant-read dial that measures temperatures from 0 °F to 220 °F

This type of thermometer is most commonly used in foodservice operations. It should have an adjustable calibration nut and an easy-to-read temperature marking. A dimple marks the end of the sensing area.

- A digital thermometer that measures temperature with a metal probe and displays the temperature on a digital readout

This type of thermometer is available in various styles from a pocket size up to a panel-mounted display. Many digital thermometers have interchangeable temperature probes used to measure temperature of different items.

Follow these guidelines for using a thermometer properly:

- Clean and sanitize the stem of the thermometer after every use. Use a sanitizing solution or a sanitizing wipe. Allow to air dry.
- Store in a clean and sanitized case.
- Sanitize the clean case by immersing in a sanitizing solution.
- Check and change batteries in digital thermometers on a routine basis.
- Measure the internal temperature of a food by inserting the stem of the thermometer into the center and thickest part of the food.
- Check the temperature of foods in several places.
- Clean and sanitize the thermometer before inserting it into a different food.
- Use the food thermometer to check the temperature of refrigerated foods during the receiving process. Refrigerated foods should be delivered at or below 41 °F, except as specified in laws governing milk, shell eggs, and molluscan shellfish.
- Write down all temperatures so that there will be a record.
- Test the temperature of the milk or juice by opening a carton and inserting the thermometer at least two inches into the liquid. Avoid touching the bottom or sides of the container.



How to calibrate a food thermometer:

Use either of these methods to calibrate food thermometers.

Ice-Point Method

The ice-point method is used most often unless a thermometer cannot register a temperature of 32 °F (0 °C).

1. Fill a glass with crushed ice. Add water until the glass is full.
2. Place the thermometer in the center of the glass of ice water, not touching the bottom or sides of the glass.
3. Stir or shake the glass of ice water to assure even temperature distribution throughout. Wait until the indicator stops.
4. The temperature should register 32 °F. If it does not, adjust the calibration nut by holding it with pliers or a wrench and turning the face of the thermometer to read 32 °F. If using a digital thermometer with a reset button, adjust the thermometer to read 32 °F while the metal probe is in the ice water, or replace the battery.

Boiling-Point Method

This method may be less reliable than the ice-point method because of variation due to high altitude.

Use this method to calibrate food thermometers with scales beginning at 32 °F.

1. Using a deep pan, bring water to a boil.
2. Place the thermometer in the center of the boiling water, not touching the bottom or sides of the pan. Wait until the indicator stops.
3. The temperature should register 212 °F. If it does not, adjust the calibration nut by holding it with pliers or a wrench and turning the face of the thermometer to read 212 °F. If using a digital thermometer with a reset button, push it while the metal probe is in the boiling water, or replace the battery. Follow work safety procedures.
4. The boiling point of water is lower at high altitudes. For each 550 feet above sea level, the boiling point of water is 1 °F lower than the standard of 212 °F. For example, in a kitchen located at 5,500 feet above sea level, water would boil at 202 °F. The pointer on a dial food thermometer inserted into boiling water would need to be adjusted to the temperature 202 °F at the higher altitude of 5,500 feet.

Activity 1 Staff and Volunteers

Using a Thermometer

Provide several different foods for temperature testing in this activity such as cooked foods, salads, sandwiches, milk and juice. Demonstrate the correct way to take the internal temperature and the proper way to use a thermometer. Provide each staff member or volunteer with a thermometer and alcohol swab. Have each person take and record several temperatures. Explain procedures and provide helpful suggestions for taking temperatures and cleaning and sanitizing the thermometers. Discuss the internal temperature for some common foods. Distribute the NFSMI poster **Keep Hot Foods Hot! Keep Cold Foods Cold!**

Note: If it is not possible to prepare the foods needed just for this activity, consider conducting the activity on days when these foods are being served.

Activity 2 Staff and Volunteers

Distribute Handout 3: **Checklist for Using a Food Thermometer.** Ask the training participants to fill out the checklist to evaluate their skills in using thermometers. Discuss the results in a general way.



Remember:

1. Always use a food thermometer when you cook.
2. The color of cooked meat - whether it's pink or brown inside-can fool you.
3. Place the thermometer in the thickest part of most foods, away from any bones and fat.
4. Cook food to a safe internal temperature.
5. Check the temperature in several places to be sure the food is cooked evenly.
6. Wash the food thermometer with hot, soapy water after using it.

Engage the training participants in a discussion about the six principles. Ask the participants to unscramble the words in Thermy™ Rules! Discuss the answers. Answers to the scramble are at the bottom of the page. Remind staff and volunteers to sanitize the food thermometer with a sanitizing solution or with an alcohol swab.

Focus on Children

Children can learn basic principles of food safety at a young age. Learning these principles at an early age can help ensure that they will practice them for a lifetime.

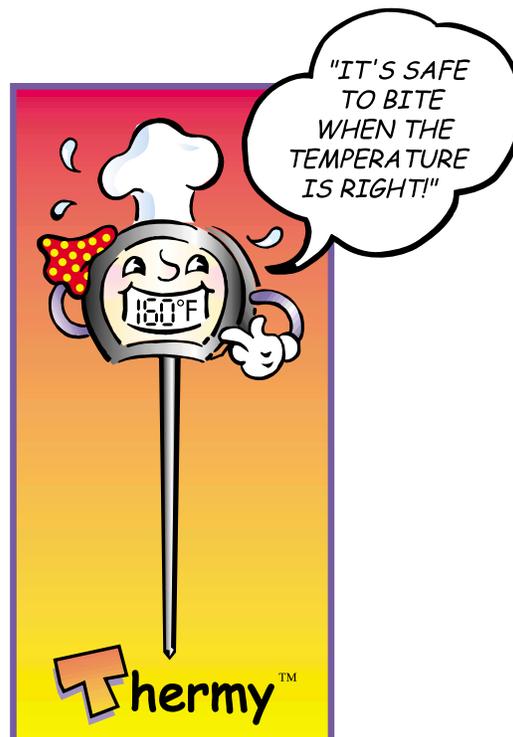
Activity 1 Children

Thermy™ Coloring Page

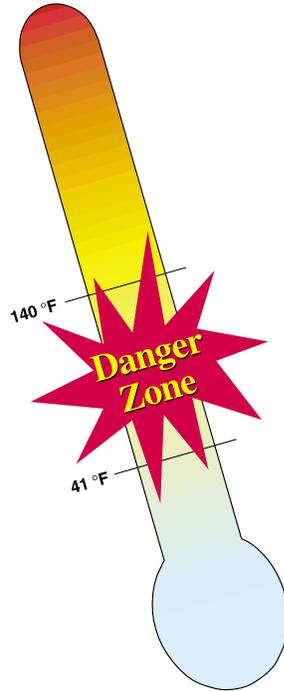
(This activity is appropriate for children in grades K-3.)

Distribute Handout 4: **Thermy™ Coloring Page** to the children.

Discuss the importance of cooking foods to the right temperature and teach the children the phrase "It's Safe to Bite When the Temperature is Right!" Allow time for the children to color Thermy™. Post the coloring pages in a common location or encourage the children to take the coloring sheets home.



Food Safety and Inspection Service, USDA



Handouts

Minimum Safe Internal Temperatures

Product	Internal Temperature
Poultry, stuffing, stuffed meats, stuffed pasta, casseroles, leftovers	165 °F for 15 seconds
Pork, bacon	145 °F for 15 seconds
Injected meats	155 °F for 15 seconds
Ground or flaked meats including hamburger, ground pork, flaked fish (patties or sticks), sausage, gyros	155 °F for 15 seconds*
Beef and pork roasts	145 °F for 4 minutes*
Ham (a cured pork roast)	145 °F for 4 minutes
Beef steaks, veal, lamb, commercially raised game animals	145 °F for 15 seconds
Fish	145 °F for 15 seconds
Shell eggs for immediate service	145 °F for 15 seconds
Any potentially hazardous food cooked in a microwave oven	165 °F for 15 seconds; Let food stand for 2 minutes after cooking to obtain temperature equilibrium
Vegetables to be served hot	140 °F or above
Leftovers to be reheated (example: leftover spaghetti with meat sauce)	165 °F for 15 seconds; Let food stand for 2 minutes after cooking
Convenience products that include a potentially hazardous food, such as hamburger patties, chicken nuggets, burritos, and pizza	165 °F for 15 seconds
Ready-to-eat food taken from a commercially processed, hermetically sealed container or from an intact package (examples: hot dogs, chicken nuggets)	140 °F (heat rapidly to this temperature for hot holding)

*For alternative times and temperatures, see the FDA Food Code 2001
<http://www.cfsan.fda.gov/~dms/fc01-toc.html>

**Do not serve wild game in FNS Child Nutrition Programs.
 All game must be purchased from a USDA meat inspected establishment.
 Wild game is not allowed for use in FNS Child Nutrition Programs.**

U. S. Department of Agriculture, Food and Nutrition Service, with the National Food Service Management Institute. (2002), *Serving it safe*. 2 Ed. University, MS: National Food Service Management Institute.



Handout 1

Lesson Two

Food Safety for Summer Food Service Programs



Tips for Moving Foods Quickly Through the Danger Zone

- Chill heated or cooked bulk foods in shallow pans
- Stir frequently
- Use an ice paddle to stir
- Use an ice bath
- Take and write down internal temperatures often
- Use a blast chiller, if available
- Don't overpack the refrigerator; cold air must circulate to keep food safe

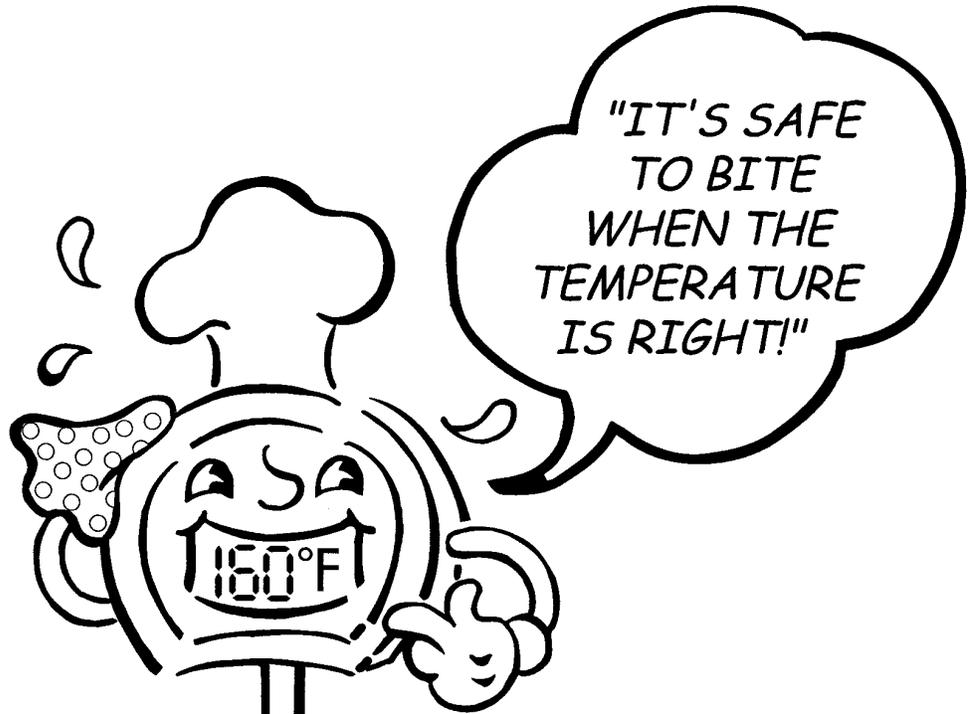


Checklist for Using a Food Thermometer

Complete the following checklist to see how your thermometer use skills measure up.

	OK	Need to Improve
▪ I clean and sanitize stem of the thermometer after every use.	<input type="checkbox"/>	<input type="checkbox"/>
▪ After washing the stem, I sanitize the stem with a sanitizing solution or a sanitizing wipe. I allow it to air dry.	<input type="checkbox"/>	<input type="checkbox"/>
▪ I store the thermometer in a clean and sanitized case.	<input type="checkbox"/>	<input type="checkbox"/>
▪ I sanitize the clean case by immersing it in a sanitizing solution.	<input type="checkbox"/>	<input type="checkbox"/>
▪ For digital thermometers, I check and change batteries on a routine basis.	<input type="checkbox"/>	<input type="checkbox"/>
▪ I measure the internal temperature of a food by inserting the stem of the thermometer into the center and thickest part of the food.	<input type="checkbox"/>	<input type="checkbox"/>
▪ I check the temperature of foods in several places.	<input type="checkbox"/>	<input type="checkbox"/>
▪ I clean and sanitize the thermometer before inserting it into a different food.	<input type="checkbox"/>	<input type="checkbox"/>
▪ I use the food thermometer to check the temperature of refrigerated foods during the receiving process. (Refrigerated foods should be delivered at or below 41 °F except as specified in laws governing milk, shell eggs, and molluscan shellfish.)	<input type="checkbox"/>	<input type="checkbox"/>
▪ I write down all internal temperatures so that there will be a record.	<input type="checkbox"/>	<input type="checkbox"/>
▪ I test milk or juice by opening a carton and inserting the thermometer at least two inches into the liquid. I avoid touching the bottom or sides of the container.	<input type="checkbox"/>	<input type="checkbox"/>

Thermy™



Food Safety and Inspection Service, USDA

Thermy™ is the messenger of a national consumer education campaign of the USDA/FSIS designed to promote the use of food thermometers.