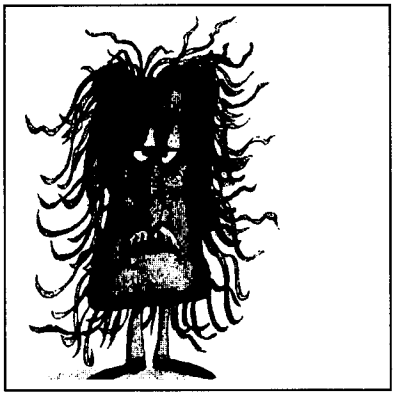


Foodborne Illness

This section covers the many hazards and opportunities for foodborne illness in our kitchens and meal service. It highlights key points for identifying and eliminating these hazards and tools and tips for keeping food safe. Safe food that is fresh and properly prepared and served entices our customers to return time and again to our school restaurant.

Microbe Menaces!

Rules to prevent foodborne illnesses

LESSON Content

- What food borne illness is
- Causes of foodborne illness
- The "Three C's" of food safety

LEARNING Objectives

- Participants will learn to identify causes of foodborne illness
- Participants will be able to correctly recite the "Three C's"
- Participants will know how to prevent foodborne illness in the kitchen

Lesson TIME: 10 minutes
Preparation TIME: 20 minutes to review the script and make copies of handouts

MATERIALS Needed

- Overhead projector (or handouts), flip chart or writing board
- Handouts: Foodborne Illness
  Remember the "Three C's" of food safety

SCRIPT

The script on the following pages is provided for your use. Notes to you are in ***bold italics*** – they are not part of the script. Handouts can be made into transparencies or copied and distributed along with your talk.

Today we will talk about foodborne illness (commonly referred to as food poisoning) and how we, as foodservice employees, can prevent it from occurring in our school.

Foodborne illnesses are caused by foods that contain bacteria or other microorganisms that are harmful to the human body. Foodborne illness can make people, especially young children, very sick. In fact, it can be fatal. Bacteria and other microorganisms are everywhere. They can be found in the soil, in saliva, under your fingernails, on a doorknob or a towel.

No one can see bacteria without a microscope. The food may look, smell and even taste the same as food without bacteria. That's why our food handling practices are so important.

Most foodborne illnesses are caused by a relatively small number of microorganisms. *(Display or hand out "Foodborne Illness")* When allowed to grow and spread to prepared foods, these invisible invaders can become a serious health hazard. These potentially harmful microorganisms include bacteria, such as "Cocky E. Coli" *(Escherichia Coli* – prounounced *esh-ar-ik'-eeya coii),* "Brazen Botchy" *(Clostridium Botulinum* prounounced *klos-trid'-e-um boch-uh-li'-num),* "Pesky Perfy" *(Colistridium Perfringes* pronounced *klos-trid'-e-um per-frin' jenz),* "Savage Sam" *(Salmonella* prounonced *sal-rnuh-nel'-uh)* and "Sinister Staph" *(Staphylococcus Aureus* prounounced *staf-uh-luh-kok'-us or'-e-us);* viruses seen here like "Voracious Virus"; parasites including "Tricky Trichinella" *(Trichinella Spiralis* prounounced *trik-uh-nel'-luh);* and fungi, such as yeasts and molds seen here as "Frightening Fungi." Bacteria cause most foodborne illnesses.

Our job is to be sure our food service process is safe and sanitary. We can do this by identifying the factors that contribute to foodborne illnesses. Let's do some brainstorming and come up with some likely causes of food poisoning. *(Use an overhead projector or* **flip** *chart and write down the group's ideas.)*

You have just identified many possible causes of foodborne illness. Let's talk about other causes not discussed. *(Make sure that the following are mentioned in the brainstorming session or discussion:*

- Food can become contaminated when it is received, prepared or served.
- People can transmit organisms from their bodies to food by touching, coughing or sneezing.
- Unsanitary work areas and equipment can contaminate food.
- Disease-spreading pests, such as mice and flies, may infect food.

Let's move on and consider how we can prevent foodborne illnesses from occurring. It's quite easy if we remember the "Three Cs": Clean, Cold and Cooked. (Display or hand out "Remember the Three Cs of Food Safety.")

Clean means something is free of soil or dirt. Good housekeeping, proper personal hygiene and sanitation of equipment and utensils are ways to keep the food preparation, storage and meal service areas clean. Sanitizing, on the other hand, means reducing harmful microscopic organisms to safe levels. These organisms can easily go unnoticed on hands and food contact surfaces that appear clean but aren't sanitary.

Cold means storing food at the right temperatures to stop the growth of bacteria and other organisms. Although these microorganisms survive in the refrigerator or freezer, they generally can't reproduce at temperatures below 40°F.

Cooked means bringing foods to a high internal temperature while cooking (165°F) and holding cooked foods at a high temperature to keep them safe (140°F). *(State and local agencies may require foods to be held at higher temperatures. Be sure to follow the guidelines established by your state, county or city health agencies.)*

Its easy to remember the most important temperatures. Store foods at or below **40°F and heat and hold foods at 140°F or above. The danger zone is between 40°F and 140°F.**

Now let's spend a few minutes discussing precautions we've taken to eliminate potential causes of food poisoning in our kitchen. What else can we do to eliminate potential problems?

FOODBORNE Illness is caused by food that contains bacteria or other microorganisms that are harmful to the human body. Here are the Primary Culprits!

"Tricky Trichinella."
(Trichinella)

"Cocky E. *Coli*"
(Escherichia coli)

"Brazen Botchy"
(Clostridium botulinum)

"Voracious Virus"
(Virus)

"Pesky Perfy"
(Clostridium perfringens)

"Savage Sam"
(Salmonella)

"Frightening Fungi"
(molds & yeasts)

"Sinister Staph"
(Staphylococcus aureus)

Source: Serving it Safe, page 33

REMEMBER the "THREE C's" of Food Safety

COOKED

COLD

CLEAN

Source: Serving it Safe, page 38

Take this and Shove it!

How to use thermometers to reduce foodborne illnesses

LESSON Content

- Types of thermometers and their use in the kitchen
- Techniques to calibrate a thermometer
- How to use and read a thermometer

LEARNING Objectives

- Participants will learn to properly use thermometer to measure temperatures in refrigeration units and food products
- Participants will be able to correctly calibrate and use a thermometer

Lesson TIME: 10-15 minutes

Preparation TIME: 30 minutes to read through the lesson, collect thermometers and food products for demonstration and make copies of handouts

MATERIALS Needed

- Handouts
- Thermometers
- Ice water and/or boiling water for thermometer calibration
- Food products – chicken nuggets, hot dog, slice of pizza, chicken patty

SCRIPT

The script on the following pages is provided for your use. Notes to you are in ***bold italics*** – they are not part of the script. Handouts can be made into transparencies or copied and distributed along with your talk.

We all know that monitoring the temperatures of our refrigerators and freezers and keeping food out of the danger zone is important in preventing foodborne illness. Today we are going to review how to handle thermometers and how to take food temperatures. We already know how to do it, but once in awhile it's good to review the proper procedures.

There are two types of thermometers we can use to measure the temperatures of our refrigerators and freezers ***(Display or hand out "Thermometers.")*** These thermometers may be built in so we can see the temperature without opening the door, or they may be a hang-on thermometer that we attach to a shelf inside the unit. If we are using a hang-on thermometer, it should be placed in the warmest part of the unit--usually the area by the door. Check the temperature at least once a day. The temperature in the refrigerator should be 40°F or below. The temperature in the freezer should be 0°F. Notify your supervisor if there is a discrepancy. A hang-on thermometer can be used to check the accuracy of a built-in thermometer. Compare the readings of the thermometers and notify your supervisor of any discrepancy.

Now that we know what thermometers to use to check the temperatures of our refrigerators and freezers, let's talk about the types of thermometers we use when measuring the temperatures of foods. Again, there are two types of thermometers. The bi-metallic stemmed thermometer is the most common food thermometer. It measures temperatures through a metal stem just past a dimple***. (Show them where the dimple is found.)*** There is a dial on top and some brands have a calibration nut below the dial. This nut is used to adjust the temperature reading. Remember, never leave this thermometer in food that is cooking in an oven or microwave or on the stove top.

(Omit the following if you do not use thermocouple thermometers at your site.) The second type of thermometer is a thermocouple. It measures temperatures electrically through a sensor in the tip. It has a digital temperature reading. Thermocouple thermometers give very rapid, accurate temperature readings. The temperature is measured at the very tip of the probe. Thermocouple thermometers can be used to measure surface or center temperatures of food.

(Continue here) So how do we use these thermometers? It's really easy. First, we need to wash, rinse, sanitize and air dry the thermometer before each use to eliminate contamination. A sanitizing solution appropriate for food contact surfaces can be used to sanitize the thermometer.

Next, we place the tip into the thickest part of the food, usually the center. Make sure that the dimple or sensor of the thermometer is completely immersed or surrounded by the food product. To avoid getting a false reading, be careful not to let the thermometer touch the pan, bone, fat or gristle.

Then, wait for the thermometer to stabilize--for the needle to stop moving or the digital read-out to slow significantly. Remember to check temperatures in several parts of the food.

We should always wash, rinse, sanitize and air dry the thermometer after each use. And, once in awhile, we need to check the accuracy of the thermometer. This is necessary especially after it is dropped or exposed to extreme temperature changes. Some thermometers can be recalibrated. Look for the calibration nut. Those thermometers without a recalibration nut must be replaced.

You can use two methods to recalibrate thermometers: the ice point method or the boiling point method. For safety reasons, we recommend that you use the ice point method. Insert the thermometer into a 50/50 ice and water slush until the temperature stabilizes. Adjust the calibration nut so it reads 32°F (0°C).

(As a manager, you may want to use the boiling point to calibrate your thermometers. We do not recommend that you teach this to staff.) To use the boiling point method, insert the thermometer into boiling water until the temperature stabilizes. Adjust the calibration nut so that the indicator reads 212°F (100°C).

Once we're sure that our thermometers are calibrated, we can use them to check the temperature of foods that we have prepared. Most of the foods we prepare are not large pieces such as roasts or whole turkeys. So how do we place a thermometer in a chicken nugget, hot dog, slice of pizza or chicken patty to get an accurate reading?
(Review instructions for using the type of thermometer found in your facility. Demonstrate inserting a thermometer into the various foods.)

Let's look at the instructions for using a bi-metal thermometer. Chicken patties are often on the menu. Sometimes the patty is breaded and other times it is not. Be sure to check the internal temperature of the chicken, not the breading. Place the bi-metal thermometer in the patty from the side and push towards the center. This method also works for hamburger patties.

For chicken nuggets, we should stack three or four nuggets and insert the bi-metal thermometer through the center of the stack. Be sure that the temperature sensing part of the thermometer is in a piece of nugget.

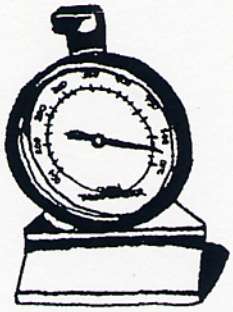
Who knows how to check the temperature of a hot dog? We should insert the bi-metal thermometer in the end and push toward the center.

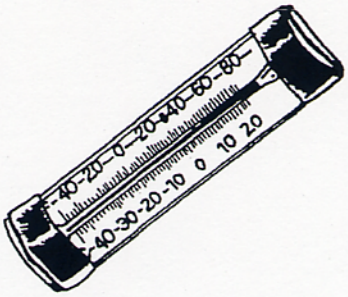
What about pizza? Place the bi-metal thermometer in between the cheese and crust.

Now let's put the information we reviewed today to work. ***(If time permits, allow each person or group of two to calibrate thermometers.. Ask groups to use the ice point method.)***

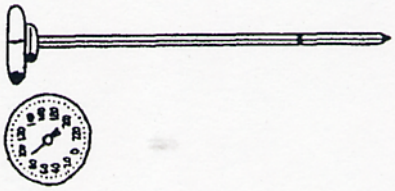
Now we'll practice inserting the thermometer into the foods we discussed today.

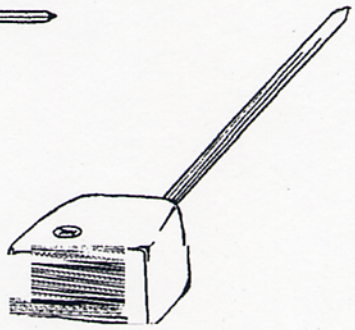
Thermometers





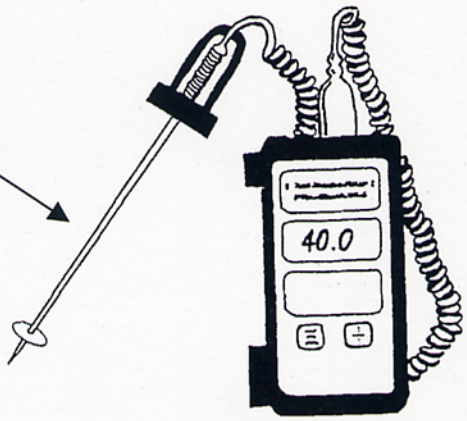
Hang-on Thermometers





Dial-Face and Digital Display Bi-Metal Thermometers

Thermocouple Thermometer with Changeable Probe



Source: page 19
No Time to Train

Take this and Shove it!

Thermometers

Equipment

Hang-on thermometers
Built in thermometers

Food

Bi-metallic stemmed (Instant read) -dimple
Thermocouple - tip

The stem thermometer is standard essential equipment in school food service operations. The temperature reading is done when needle stops moving or digital read out stops. Temperature is registered at the point of the dimple. The dimple is a hole about one third to halfway up the stem. *Show the dimple.*

Wash, rinse, sanitize and air dry the thermometer after every use.

Accuracy should be checked on a regular basis. If the thermometer has a calibration nut, it can be recalibrated. The recommended method is to place the thermometer in a 50/50 ice and water slush. The thermometer should stabilize at 32 degrees F. If not, adjust the calibration nut so it reads 32 degrees F. *(The boiling point method is not recommended for staff. To use the boiling point method, insert the thermometer into boiling water until the temperature stabilizes. Adjust the nut so the thermometer reads 212 degrees F).*

We use stem thermometers to check product doneness, hot holding, and cooling temperatures. It is the only way to determine food safety. We also use stem thermometers to check equipment accuracy.

Check internal temperatures of food products at the thickest part and in several places. In thinner products, place several together such as chicken nuggets or hamburgers. Casserole or thick products should be checked in several places.

Stack items like chicken nuggets/patties/burgers

Draw pictures here

Cold is Cool!

Quick measures for keeping milk cold and refreshing

LESSON Content

- Nutritional importance of milk and dairy products
- Guidelines for receiving, storing and serving milk
- Critical temperature range for milk storage and service

LEARNING Objectives

- Participants will understand the importance of serving milk that is fresh, cold and good-tasting
- Participants will be able to identify steps to receive and store milk to insure freshness
- Participants will recognize steps to keep milk cold on the service line

Lesson TIME: 10 minutes
Preparation TIME: 20 minutes to read lesson plan, photocopy handouts

MATERIALS Needed

- Overhead projector with blank transparencies or flip chart or writing board
- Cold is Cool video (this is an optional 12 minutes video available free from National Dairy Council – see our website for ordering details at www.njteamnutrition@rutgers.edu)

SCRIPT

The script on the following pages is provided for your use. Notes to you are in ***bold italics*** – they are not part of the script. Handouts can be made into transparencies or copied and distributed along with your talk.

When we talk about good nutrition, milk and dairy products are always central. Children need calcium to grow strong bones and teeth. Dairy products are the primary source of available calcium and of other important key nutrients including protein.

Kids 4 to 8 years old need 3 servings of milk or milk group foods daily and kids 9 to 18 years old need 4 servings daily to get adequate calcium and other key nutrients. But many children and teens aren't getting enough calcium.

Like most of us, kids may be turned off to drinking milk when it tastes warm or spoiled. So keeping milk cold and fresh-tasting is critical to insure that kids will accept and drink milk as part of their school meal.

We can't control what happens to milk before it arrives at our door. But we can control it from the time it leaves the delivery truck until the time it is served.

Let's start with the arrival of milk at our door. What are important details to pay attention to?
(Ask group to make a checklist. Have one participant record responses on a flip chart or board. The following points should be covered:

- ***Delivery truck is refrigerated and clean***
- ***Milk crates are clean and free of debris***
- ***Cartons are clean, sealed and undamaged***
- ***Check "sell-by" date to make sure you can serve it before this date expires***
- ***Check that the temperature of the milk is 40 degrees or below***
- ***Always check the "sell-by" date before serving***
- ***"When in doubt…….throw it out!"***

Milk temperature is critical to freshness. To insure freshness we need to monitor milk temperatures from delivery through service. A Milk Temperature Log can help us.
(Hand out copies of the Milk Temperature Log.)

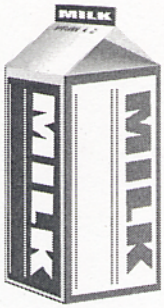
Milk quality deteriorates quickly if it is not stored properly. What do you think are the most important storage rules for milk and dairy products?
(Ask group to make a checklist. Have one participant record responses on a flip chart or board. The following points should be covered:

- ***Store milk immediately after delivery***
- ***Rotate stock – first in, first out (FIFO) rule***
- ***Keep refrigerator at 40 degrees or below***
- ***Store milk away from foods with strong odors***
- ***Wipe up spills immediately***
- ***Clean and sanitize the milk refrigerator on a regularly scheduled basis***

One of the biggest complaints of students and often a reason that they do not drink their milk is that it is warm. What can we do to insure that the milk we serve is cold at the time of service?

(Ask group to make a checklist. Have one participant record responses on a flip chart or board. The following points should be covered:

- ***Milk should be the last item placed out on the serving line***
- ***Cartons on the line should be in refrigerated or iced holding areas***
- ***Keep milk case lids closed until the first lunch service begins***
- ***Open lids of milk cases immediately before serving***
- ***Close milk case lids between each lunch service period – reopen immediately before the next service***
- ***If cooler space is limited, use milk barrels and milk wraps to keep milk cold.***



Cold is Cool!

One of the biggest reasons students do not drink their milk is because it is warm. What are some things we can do to make sure the milk is kept cold?

Delivery

Delivery truck is refrigerated and clean
Milk crates are clean and free of debris
Cartons are clean, sealed and undamaged
Check "sell-by" date to make sure you can serve it before this date expires
Check that the temperature of the milk is 33-40 degrees
Always check the "sell-by" date before serving
"When in doubt…throw it out!"

Storage

Store milk immediately after delivery
Rotate stock – first in, first out (FIFO) rule
Keep refrigerator at 33 – 40 degrees
Store milk away from strong odors
Wipe up spills immediately
Clean and sanitize the milk refrigerator on a regularly scheduled basis

Cold Service

Milk should be the last item placed out on the service line
Cartons on the line should be in refrigerated or iced holding areas
Keep milk case lids closed until the first lunch service begins
Open lids of milk cases immediately before serving
Close milk case lids between each lunch service period – reopen immediately before the next service
If cooler space is limited, use milk barrels and milk wraps to keep milk closed