

No Time To Teach

Using and Calibrating a Bi-Metallic Stemmed Thermometer

Lesson Participants: School Nutrition Employees

Type of Lesson: Face-to-face teaching session

Objective: For school nutrition employees to be able to accurately demonstrate how to calibrate and use a thermometer.

Materials Needed:

- Presenter's Script
- Pens or Pencils (one for each participant)
- Example Scenario (one for each participant)
- 1 or 2 accurately calibrated thermometers
- 1 or 2 inaccurately calibrated thermometers
- 1 or 2 cups of ice
- 1 or 2 cups of water
- A picture showing the temperature danger zone. (See page 5 of this lesson or download from http://www.olemiss.edu/depts/nfsmi/Information/temp_miniposter.pdf)
- Copies of continuing education certificate for each participant (see page 7 of this lesson)



Presenter's Script:

Using and Calibrating a Bi-Metallic Thermometer

Introduction: (1 minute)

SAY: For the next 10 minutes we will be talking about calibration of thermometers. Proper calibration of thermometers is the only way to get accurate temperatures of food. Calibration and correct use of thermometers ensures that the temperatures being taken of foods are acceptable. This is extremely important with potentially hazardous foods. At the end of this lesson you will be able to demonstrate how to use and calibrate a bi-metal thermometer.

Temperature Danger Zone: (2 minutes)

SAY: Before you can use and calibrate a thermometer, you must know what temperature you are looking for with specific potentially hazardous foods (PHF). We want cold foods below 41 degrees and we want hot foods above 135 degrees. Anything in between 41 and 135 degrees is known as the temperature danger zone. When PHF temperatures are found within this range, harmful bacteria can grow and multiply, which could cause food-borne illnesses.

DO: Show picture of temperature danger zone and ask if there are any questions.

Calibration: (7 minutes)

SAY: Now that we know what temperature we are looking for when we take food temperatures, we can move on to calibration and use of the thermometer. When we calibrate a thermometer we will be using the ice-point method. When using ice-point method we want the thermometer to read 32 degrees. I will now show you how to calibrate a thermometer using this method. (Demonstrate with both a properly calibrated and improperly calibrated thermometer.) The steps to calibrate a thermometer using the ice point method are:

1. Fill a container with crushed or chipped ice.
2. Add water slowly until it overflows.
3. Add more ice until it is packed tightly to the bottom of the container, allowing excess to overflow.
4. Insert the stem of the thermometer at least two inches into the container and allow it to stabilize for 5 minutes. Note: It is important that the tip of the thermometer not touch the bottom of the container.

5. If the temperature reading is 32 degrees F., the thermometer is accurately calibrated. If necessary to adjust the thermometer, do so by small increments and allow it to stabilize before making any additional adjustments.

DO: Take your cups of ice and add the water to them according to the instructions above. Next, place your thermometer into the ice water. Wait for 1 minute and have every employee look at the thermometer.

SAY: Is this thermometer correct?

DO: Show the thermometer to employees.

SAY: Right, this is correct (assuming that the thermometer is properly calibrated at 32 degrees!). We can now use this thermometer. If it was not correct we would need calibrate it to the correct temperature or throw it away if it is not able to be properly calibrated. Every thermometer should be monitored for proper calibrated once every morning before food preparation begins, every time a thermometer is dropped, and any time a thermometer is exposed to extreme heat. Thermometer monitoring and calibration is noted on the daily production record.

Example Scenario: (5 minutes)

DO: Pass out example scenario, pens and pencils.

SAY: Now we will go over an example scenario. I will pass out the handout. Read the directions and complete the scenario. We will go over once everyone is done.

Continuing Education Documentation:

DO: Complete the Continuing Education report at the end of this lesson, obtain participant signatures, and file in *HACCP Part 4: Continuing Education and Professional Development*.

Provide each participant with a copy of the certificate of completion attached to this lesson. Remind participants to update their professional development log as required by the School Nutrition Administrator so that compliance with the USDA Professional Standards Rule is adequately documented.



Example Scenario

What's Wrong?

Directions: In the space provided what did the employee do wrong?

Maggie is responsible for calibrating all the thermometers used to check food temperatures. She collects all of the thermometers from the storage area and then gets a large cup, fills it with ice and then cold water. She waits a little while for it to get cold. Next, she places the thermometers stem down into the ice water. Two of the thermometers read 32 degrees and four did not. Maggie then reports on the Daily Production Plan that she has calibrated and checked the accuracy of all the thermometers. She then proceeds to place the thermometers back in their storage area to be used for the day.

TEMPERATURE MINI-POSTER

Sanitize in a 3 compartment sink

Heat sanitize
3rd sink
171-195°F for
30 seconds

Rinse
2nd sink
110°F

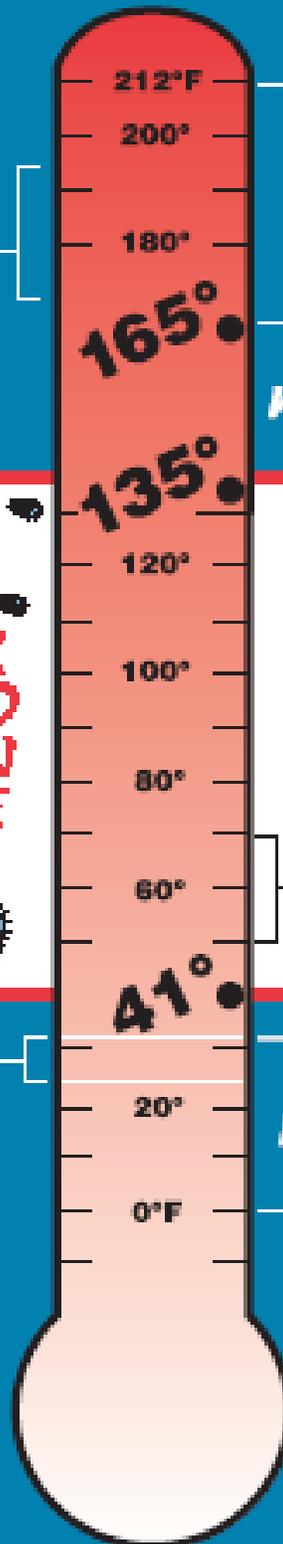
Wash
1st sink
110°F

*Use A
Thermometer!*

Quick chill storage
(26 - 32°F)



National Food Service
Management Institute
The University of Mississippi
800-321-3054
www.nfsmi.org
ET16-97(B)



Boiling

212°F

200°

180°

165°

Reheat — 165° for 15 seconds

135°

120°

100°

80°

60°

41°

20°

0°F

Keep Hot Foods Hot!

*Bacteria
Multiply*

Store dry food (50 - 70°F)

(Thaw in Refrigerator)

32°F Freezing

Keep Cold Foods Cold!

Store Frozen Food

Always follow local
& State requirements.

For further information, see
Serving It Safe, 2nd ed.

Revised 2004

FOOD SAFETY AND HACCP CONTINUING EDUCATION REPORT

(Complete this report and File in HACCP Part 4: Continuing Education and Professional Development)

LESSON TITLE: **No Time To Teach: Using and Calibrating a Bi-Metallic Stemmed Thermometer**

DATE: _____

LOCATION: _____

INSTRUCTOR: _____

Teaching Agenda/Outline is attached: **Yes** **No**

PARTICIPANT NAME	SCHOOL

Certificate of Participation

This is to certify that

completed the

School Nutrition Services

No Time to Teach Lesson:

Using and Calibrating a

Bi-Metallic Stemmed Thermometer

providing $\frac{1}{4}$ hour of continuing education
credit for the School Nutrition Area of

**Food Safety and HACCP: 2620 Food Safety-
General**

Signature of Presenter

Date