

Module 6 Overview:



Thermometers



TRAINER: Read this page ahead of time to prepare for teaching the module.

PARTICIPANTS WILL:

1. Identify different types of thermometers and their uses.
2. Demonstrate how to properly CALIBRATE a stem thermometer.

TIME: 15 minutes

TEACHING LOCATION: Kitchen

MATERIALS NEEDED:

- Activity: Thermometer Calibration (p. M6-5)
 - Thermometers
 - Bucket of ice and water (50/50 slush)
 - Small pan of boiling water
 - Thermometer holder with calibration hole or pliers

COPIES REQUIRED:

- Pre and Post Quiz
- Talking Points (p. M6-4)
- Activity: Thermometer Calibration (p. M6-5)
- Fact Sheet: Types of Thermometers (p. M6-6)

GLOSSARY TERMS:

- CALIBRATE
- DANGER ZONE



Pre Quiz

MODULE 6: THERMOMETERS

1. Do you know how to calibrate a metal stem thermometer?

Circle Yes or No

2. List three types of thermometers.



Module 6 Presentation:

Thermometers



TRAINER: Read aloud to prepare participants for training.

Today We Are Learning About Thermometers. Before our training begins today there will be a short quiz. The quiz helps the Health Department assess training effectiveness and success. You do not need to write your name on the quiz and you will not be graded. Try your best to answer all the questions and don't share your answers with coworkers. We will be taking the same quiz at the end of training so if you don't know the answers, you'll be learning them today. After the training presentation we will do an activity together followed by some review questions. The training will take about 15 minutes and all of you will be participating.



TRAINER: Read aloud.

What's the Risk?

Foods held in the DANGER ZONE - between 41°F and 135°F for more than a few hours can become unsafe to eat. By using a thermometer often to check food temperatures, you may be able to prevent a foodborne illness. This safe food practice can help you identify a problem before the food becomes unsafe to eat. An added benefit of maintaining safe food temperatures is improved food quality and reduced waste. Remember to regularly CALIBRATE your thermometers to ensure the accuracy of food temperatures.



TRAINER: Read aloud.

What's the Law?

Provide and use an accurate, metal stem thermometer for checking food temperatures.

Refrigeration units must have accurate and easy-to-read thermometers.

Place the thermometer in the warmest area of the refrigerator.



TRAINER: Give participants a copy and have them take turns reading aloud.

Talking Points

- CALIBRATE: A procedure to check and adjust thermometers so they take accurate temperatures.
- DANGER ZONE: The DANGER ZONE is when the temperature of food is between 41°F and 135°F. This is called the DANGER ZONE because bacteria will grow quickly between these temperatures.
- Thermometers come in various types, styles and prices.
- All thermometers should be checked for accuracy and CALIBRATED.
- Thermocouples can usually be sent to the manufacturer for CALIBRATION.
- CALIBRATE all new thermometers.
- CALIBRATE a thermometer after it had been accidentally dropped.
- Clean and sanitize thermometers between uses.



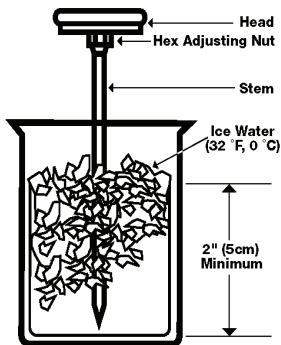
Module 6 Activity:

Thermometer Calibration

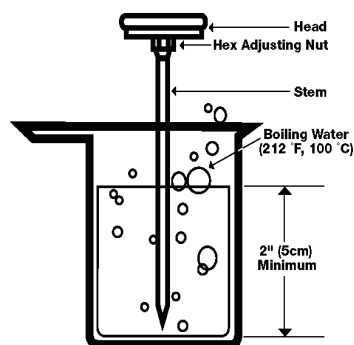


TRAINER: Give participants copies of activity sheet and corresponding fact sheet(s). Have participants complete individually or as a group.

- Review and discuss the Types of Thermometers fact sheet (p. M6-6).
- When using thermometers to ensure food safety, make sure your thermometer readings are accurate. The accuracy of the thermometer can be checked using the CALIBRATION procedure below. CALIBRATE new thermometers and then at least quarterly.
- Procedure (for dial thermometers):
 1. Place thermometers in a cup of ice and water mixture or boiling water.
 2. Immerse the stem a minimum of 2 inches into the mixture, being careful not to touch the sides or bottom of the container.
 3. Wait until needle stops moving.
 4. The thermometer should read 32°F in the ice and water mixture or 212°F in the boiling water.
 5. Use the wrench/pliers to turn the calibration nut until it reads 32°F or 212°F.



Ice Point Method



Boiling Point Method

Graphics Courtesy of USDA Food Safety and Inspection Service

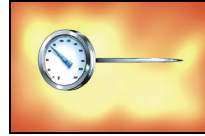


Fact Sheet:

TYPES OF THERMOMETERS

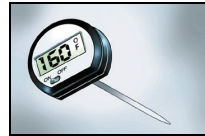
DIAL INSTANT-READ:

- Reads in 15-20 seconds
- Place 2 to 3" deep in thickest part of the food
- Temperature is averaged along the probe, from tip to 2 to 3" up the stem
- Insert sideways for thin foods
- Some models can be calibrated; check manufacturer's instructions
- Not designed to be left in the food while it is cooking



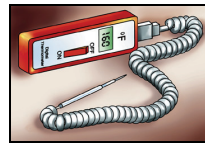
DIGITAL INSTANT-READ:

- Reads in 10 seconds
- Place at least 1/2" deep
- Can measure thick and thin foods
- Some models can be calibrated; check manufacturer's instructions
- Not designed to be left in the food while it is cooking



THERMOCOUPLE:

- Reads in 2-5 seconds - fastest reading of all thermometers
- Place 1/4" or deeper
- Can measure thick and thin foods
- Can be calibrated; check manufacturer's instructions
- Not designed to be left in the food while it is cooking
- More expensive than instant-read thermometers



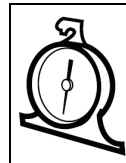
OVEN-SAFE:

- Reads in 1-2 minutes
- Place 2 to 2-1/2" deep in the thickest part of the food
- Best for roasts, soups, or casseroles
- Can remain in the food while it is cooking in the oven
- Heat conduction of metal stem can cause false high readings
- Some models can be calibrated; check manufacturer's instructions



INDICATING THERMOMETERS:

- Can be kept in the refrigerator and freezer
- Can be used to check the accuracy of built-in thermometers



INFRARED:

- Fast read out
- Can read the temperature of the food without touching it
- Only measures surface temperature, not for internal food temperatures



Information and Graphics Courtesy of USDA Food Safety and Inspection Service

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TRAINER: Share one or more of the following "Tales from the Kitchen."



Tales from the Kitchen

The following are examples of violations observed during inspections.

1. An employee was trying to check the temperature of a thin hamburger with the tip of the dial thermometer.

Problem: Dial thermometers must be inserted at least 2-3 inches into the food, and this is difficult to do with thin foods.

Solution: For thin foods, a tip-sensitive digital thermometer or thermocouple works best.

2. An employee checked the temperature of a container of potato salad right after checking some raw chicken without cleaning/sanitizing the thermometer.

Problem: Thermometers should be cleaned and sanitized to avoid cross-contamination, especially when going from raw to ready-to-eat foods.

Solution: Alcohol swabs or sanitizing wiping cloth solutions are acceptable.

3. An employee frequently checked food temperatures, but rarely CALIBRATED his thermometer.

Problem: Because he did not regularly CALIBRATE their thermometer, he did not know it was off by 20°F. He thought the food was 38°F, but it was actually 58°F.

Solution: CALIBRATE thermometers often.



Module 6 Questions:

Thermometers Review



TRAINER: Ask participants to answer the following.

1. Name several types of thermometers.

Answer: Dial instant-read, Digital instant-read, Thermocouple, Infrared, Oven-safe

2. What temperature should the thermometer read in an ice and water mixture?

Answer: 32°F

3. How do you clean and sanitize the thermometer before use and between raw and ready-to-eat food?

Answer: Alcohol swabs or sanitizing wiping cloth solutions



Post Quiz

MODULE 6: THERMOMETERS

1. Do you know how to calibrate a metal stem thermometer?

Circle Yes or No

2. List three types of thermometers.



Post Quiz Answers

MODULE 6: THERMOMETERS

1. Do you know how to calibrate a metal stem thermometer?

Circle Yes or No

2. List three types of thermometers.

Dial instant-read, Digital instant-read, Thermocouple, Infrared, Oven-safe, Indicating thermometer



Module 6 Moving Ahead:

For Managers/Trainers



TRAINER: Do not read aloud. These are your next steps, additional activities and resources.

After the Training

- Have participants sign Training Verification Log (p. 9), a requirement for **SAFE FOOD CREW** Recognition Program.
- Complete the Trainer's Evaluation Form (p. 10), a requirement for **SAFE FOOD CREW** Recognition Program.
- Present participants with Certificate of Completion (p. 12).
- Track all trainings an employee receives on the Employee Attendance Record (p. 13).
- Develop or review procedures for temperature monitoring, recording and corrective actions if improper temperatures are found.
- Create and/or post easy-to-use temperature logs for recording temperatures.
- Determine with your staff a specific dates they should check thermometer calibration. Develop a written calibration log and assign this duty to an employee(s). Review the calibration logs as necessary.
- Recording thermometers and data loggers can also be used to monitor and record food or equipment temperatures.
- Post the Thermometer Placement fact sheet (p. M6-12) and Temperature Danger Zone fact sheet (p. M6-13) in the kitchen for a quick reference.

Resources

- FDA 2001 Food Code and Wisconsin Food Code: 4-203, 4-204.112, 4-302.12, Temperature Measuring Devices.
- Thermy™ Website - a national consumer education campaign designed to promote the use of food thermometers, developed by the Food Safety and Inspection Service (FSIS), U.S. Department of Agriculture (USDA).
<http://www.fsis.usda.gov/thermy/index.htm>
- Kitchen Thermometer booklet, developed by the Food Safety and Inspection Service, USDA <http://www.fsis.usda.gov/oa/thermy/kitchen.pdf>
- Recording Thermometers - www.ibutton.com*

*Reference to commercial or trade names does not imply endorsement by Public Health – Madison and Dane County or bias against those not mentioned.

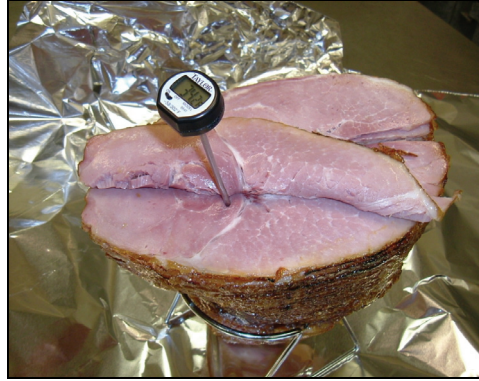


THERMOMETER PLACEMENT

Ham

Insert the thermometer in the **thickest area**, away from bone & fat.

Check the temperature of **irregularly shaped foods** in several places.



Hamburger Patty



For **thin foods** like a hamburger patty, a digital thermometer or thermocouple is best.

Lasagna

Combination Dishes/Casseroles

Check in the center or thickest part.

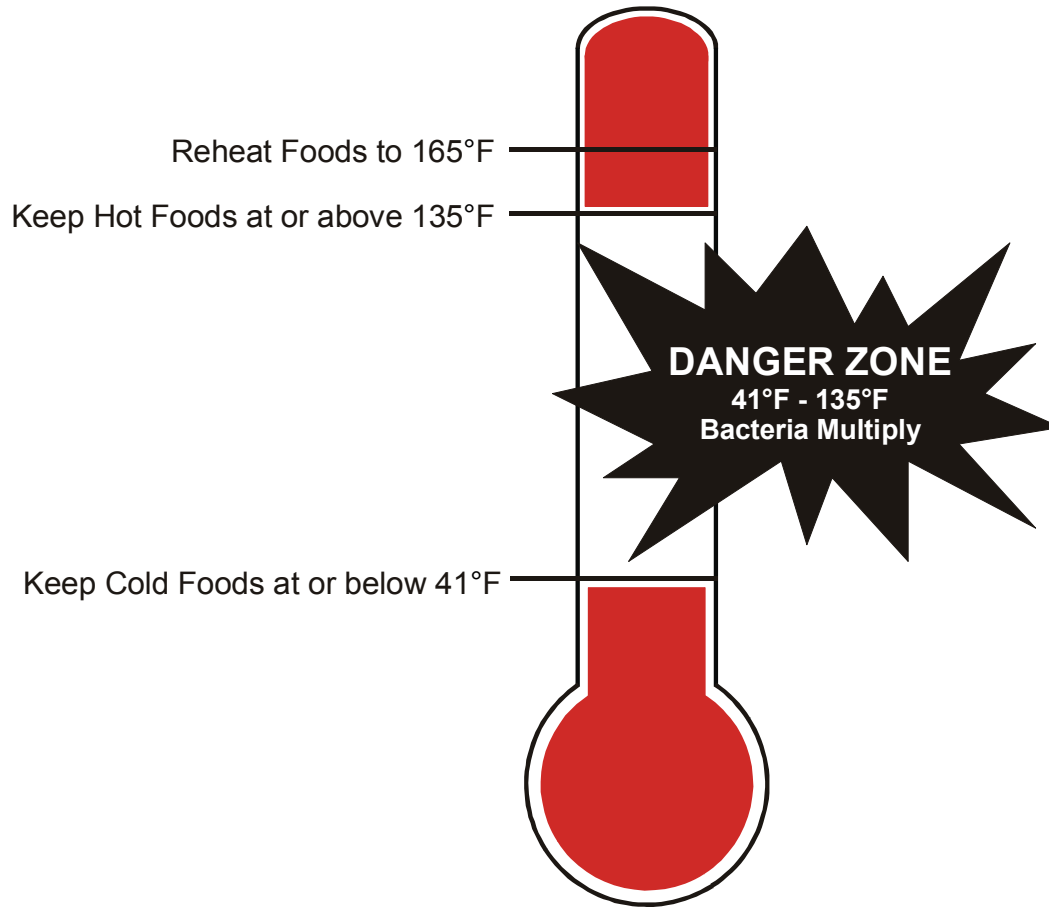
Check in several places, especially for dishes containing eggs or ground meat and/or poultry.



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TEMPERATURE DANGER ZONE



WHEN IN DOUBT, THROW IT OUT!

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