

Bite When the Temperature is Right

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Cooking foods to the proper temperature helps you to serve safe food to your family and friends. The “Bite When the Temperature is Right” program will focus on the different types of thermometers available for use when preparing food and how to use each thermometer correctly. Participants will also learn how to calibrate a thermometer. A cooking temperature chart will let program participants know what temperature their foods should reach to be safe to eat.

Lesson Goals:

Participants will learn how to select a thermometer for the product that they are cooking, how to use a thermometer to determine when the food has reached the proper temperature, and how to calibrate the thermometer.

Lesson Objectives:

As a result of this lesson, participants will be able to:

- Identify different thermometers
- Use the right thermometer for the right situation
- Calibrate a bimetallic stemmed thermometer
- Check the temperature of foods with a thermometer using the cooking temperature chart

Program Materials:

Available at:

<http://www.extension.unl.edu/communityprograms/>

- Participant's Guide: *Bite When the Temperature is Right*, HEF587
- Handout: “Which Thermometer Meets Your Needs?”
- Activity 5 quiz
- PowerPoint®: *Bite When the Temperature is Right*
- Program Evaluation Form

Before the Meeting:

Read the Leader's Guide and Participant's Guide. Decide which activities to use for the program and gather supplies and equipment. You may want to bring different types of thermometers or use photos in the PowerPoint. For the thermometer calibration demonstration, Activity 3, you will need ice and thermometers. For Activity 4, purchase ground beef or frozen ground beef patties and obtain a skillet and a two-sided clamshell grill (for example, the George Forman® grill is one brand). Duplicate the quiz for Activity 5.

At the Meeting:

Many foodborne illnesses (food poisoning) occur when people eat undercooked meat or poultry. Several microorganisms are responsible for these illnesses. *E. coli* O157:H7 (Shiga toxin-producing *E. coli*) has been associated with undercooked ground beef, and *Salmonella* has been associated with undercooked poultry (chicken, turkey) and eggs. In this lesson, we will learn how to prevent foodborne illness by cooking foods to the proper temperature. Ask participants to share recent foodborne illness outbreaks that they have heard about from the media.

Activity 1:

Discussion questions:

- How do you tell if meat loaf is heated to the proper temperature?
- Should you only depend on cooking time to determine doneness? Why or why not?

Most recipes state the oven temperature and the length of time the item should be left in the oven. The proper internal temperature is not usually listed in the recipe. Here is an example of a meat loaf recipe with the internal temperature included.



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Meat Loaf

1 ½ pounds hamburger	1 teaspoon salt
⅓ cup quick oatmeal	¼ teaspoon pepper
2 eggs, beaten	1 can tomato soup
¼ cup chopped onion	½ cup water

Mix hamburger, oatmeal, eggs, onion, salt, and pepper plus ½ can of the tomato soup. Put in a 5 ½ x 9 inch loaf pan. Add ½ cup of water to rest of the soup. Pour on top of mixture. Bake at 350°F for 1 hour **or until the meat thermometer reads 160°F.**

Activity 2:

Case Study

Cooking for large groups can be challenging. An improper food handling practice with small amounts of food may not necessarily lead to a foodborne illness but when that same improper food handling practice is used with larger quantities, a foodborne illness would likely result. The following story is of an actual foodborne illness outbreak. Figure out what practices were not done properly.

What Went Wrong?

A community organization planned to serve barbeque sandwiches to a large group of people. One person volunteered to fry the ground beef the day before the event in her home, cool it, and bring browned ground beef to the facility the next day. She fried five pounds of ground beef at one time, placed the ground beef in a plastic bag, closed the bag and placed the bag in her refrigerator. As she continued frying the ground beef (a total of 100 pounds), she placed bags of cooked meat in the refrigerator, stacking the bags to fit. The next day the bags were taken to the facility and the meat placed in three large roasters to reheat the ground beef. After the event, 114 people became ill from eating the barbeque sandwiches.

Questions to ask:

1. What food handling practices were done improperly?

Correct answers:

- She did not measure the temperature of the browned ground beef with a thermometer. She depended on color for doneness.
- Large quantities (five pounds) of hot browned ground beef were placed in plastic bags and sealed. The amount was too much (thick, dense) to cool quickly in the refrigerator. The sealed bag held in the heat, not allowing the meat to cool quickly.

- Bags were stacked in the refrigerator to cool. Again the meat was too thick/dense to cool quickly. No air circulated around the bags to aid in quick cooling.
- A home refrigerator is not designed to cool 100 pounds of ground beef quickly.

Incorrect answers:

- The cooked ground beef should have been left out on the counter to cool to room temperature before refrigerating.

2. What practices should have been used to prevent this foodborne illness outbreak?

Correct answers:

- Use a thermometer to measure the temperature of the browned meat. It should have been cooked to 160°F. Stir ground meat before measuring the temperature and measure the temperature in two or more places.
- Hot browned ground beef should have been put in an uncovered container (or loosely covered so that heat can escape) no deeper than 3 inches and placed in the refrigerator to help the meat cool quickly. When cold, the meat could have been transferred to bags and sealed.
- Meat should have been reheated to 165°F before serving.

Activity 3:

Calibrate a bimetallic thermometer. Follow directions in participant's handout.

Activity 4:

Ground beef patties can be cooked several ways. A skillet can be used or a two-sided clamshell grill (such as a George Forman grill) can be used. Make two ground beef patties the exact same size or use purchased frozen ground beef patties that are the same size (thaw before using). Cook one patty on the skillet and one patty on the clamshell grill. Use a food thermometer to measure when each patty has reached 160°F and also measure the length of time it took to cook each patty.

Activity 5:

Use this short quiz to determine how familiar each participant is with the types of thermometers and minimum cooking temperatures.

After the Meeting/Evaluation:

Before participants leave, ask them to fill out the evaluation form and mail it to the address found at the end.