

Instructional Design Document

Course: Food Safety Training: Food Temperature

Summary

Customers can become ill when bacteria multiply to dangerous levels in food. Two of the most important causes of bacterial growth are time and temperature. One way to reduce the risk of illness is to ensure that certain foods are cooked to a safe minimum temperature. Jessica Can (Pirrera) has been tasked with designing and developing a food temperature training course that would educate culinary employees about this topic and reduce the occurrence of food-borne illnesses stemming from undercooked meals.

Learning Need

Foodborne disease causes ~76 million illnesses and ~5000 deaths in the United States each year. This course is intended for chefs and employees working in a restaurant or culinary setting who cook and/or serve animal products to customers. To reduce the risk of illness, it is imperative that animal products, and dishes with ingredients containing them, are cooked to safe minimum temperatures. These temperatures can be checked using a food thermometer.

Instructional Goal

This course is designed to provide foundational information about food temperature safety, different types of food thermometers, and how and when to properly use them.

Target Audience

The target audience consists of chefs and employees working in a restaurant or culinary setting required to complete food safety training.

Delivery Environment

The course will be completely online and developed in an authoring tool that will be responsive on computers, tablets, and mobile devices. It is expected for learners to complete this course in ~10 minutes.

Learning Outcomes

(All with 100% accuracy)

- Given 3 types of thermometers, the learner will be able to (LWBAT) match each thermometer with its description.
- Given a temperature reading, LWBAT apply the freezing point method when determining if a thermometer is properly calibrated.
- Given 5 foods, the LWBAT match each with its minimum done temperature.
- After reading about reheating procedures, LWBAT determine whether or not food can be reheated to any temperature if it is being served immediately.

- **SCENARIO:** After completing the content portion of the course, LWBAT virtually clean a thermometer and determine if it is properly calibrated. LWBAT virtually take the temperature of two foods and, given the temperature, determine whether they have reached their minimum done temperatures.

Assessments (Knowledge Checks)

1. Drag and drop each thermometer type to its matching descriptions.
 - A. Digital- Uses heat sensors; are often instant and accurate.
 - B. Dial- Made of two metals; temperature is measured by the movement of a needle.
 - C. Other- Some are disposable; use with a backup thermometer.
2. Conduct a calibration test using the freezing point method. Drag the thermometer to the ice water, and read the temperature on the dial. (The temperature will read 42° F)

Is the thermometer properly calibrated?

Yes

No

3. Drag and drop the food onto its minimum done temperature. (Learners can refer back to reference slide if needed)
 - A. Tuna- 125° F
 - B. Salmon- 140° F
 - C. Chicken- 165° F
 - D. Pork- 145° F
 - E. Meatloaf (ground beef)- 160° F
4. Food can be reheated to any temperature if it is being served immediately.

True

False

5. Scenario: Learner will complete the steps necessary to properly take the temperature of two foods.

Slide 1

Step 1: Turn on the water by clicking the hot tap

Step 2: Drag the thermometer over to the hot, soapy water

Slide 2

Step 3: Drag the thermometer over to the bowl of ice water.

Step 4: Read the temperature on the dial. (The temperature will read 32° F) Is the thermometer properly calibrated? **Yes** or No

Slide 3

Step 5: Drag the thermometer over to the thickest part of the tuna steak.

Step 6: Read the temperature on the dial. (The temperature will read 127° F) Is the tuna cooked to its minimum done temperature? **Yes** or No

Slide 4

Step 7: Drag the thermometer over to the thickest part of the pre-cooked ham.
Step 6: Read the temperature on the dial. (The temperature will read 135° F) Is the ham cooked to its minimum done temperature? Yes or **No**

Course Outline

Food Safety Training: Food Temperatures

1. Intro

- a. Title, type name, click to begin
- b. Welcome _____!
 - i. Throughout the course, you will be presented with different button options such as previous, next, or submit.
 - ii. If the button is gray, it is disabled until the audio or a certain user action is completed.
 - iii. When the audio icon is present, you can click on it to hear the slide read aloud to you.
- c. Introduction
 - i. Have you ever questioned the doneness of what you're cooking?
 - ii. When it comes to food safety, there are many food handling and preparation practices to keep food safe and reduce the risk of illness.
 - iii. One such practice is to check the final cook temperature of meats, poultry, seafood, eggs, and dishes containing these ingredients with a food thermometer.
- d. Goals of course
 - i. Learn and identify 3 types of food thermometers.
 - ii. Learn when to clean and calibrate a food thermometer.
 - iii. Learn how to insert and read a food thermometer.
 - iv. Learn and identify minimum done temperatures for food safety.
 - v. Learn when to take the temperature of food.

2. What is a Food Thermometer

- a. What is a Food Thermometer:
 - i. A food thermometer is a thermometer used to measure the internal temperature of meat and other cooked foods. Using one is the only way to ensure that:
 - 1. Food is cooked to the proper internal temperature
 - 2. Harmful bacteria are eliminated
- b. Types of Food Thermometers
 - i. Digital: Digital thermometers work by using heat sensors that determine temperature, oftentimes instantly and accurately. Besides the oven cord

thermometer, most digital thermometers are not designed to be kept inside food as it cooks.

- ii. Dial: Dial thermometers are made of two different types of metal that expand in different ways when exposed to heat. The expansion of the coil with heat pushes the needle on the dial. Oven-safe dial thermometers can be left in food while cooking. Heat conduction can cause high false reading.
- iii. Other: Disposable, single-use indicators (right) are designed for specific temperature ranges. Digital or dial thermometers should also be used to confirm doneness. Most liquid-filled thermometers (left) can remain in food while cooking. Heat conduction can cause high false reading.

c. Knowledge Check

3. Thermometer Maintenance

a. Cleaning:

- i. Avoid cross-contamination by cleaning and sanitizing thermometers. Clean and sanitize them before using them for different foods, when switching tasks, after a break, or after four hours of constant use.

b. Calibration:

- i. Thermometers should be calibrated before each shift, anytime they are bumped or dropped, and according to the manufacturer's instructions.
- ii. The freezing point method, also known as the ice point method, is the most common way to calibrate thermometers. If the thermometer does not show the temperature of ice water as 32°F (0°C), then it should be adjusted (if possible).

c. Knowledge Check

4. How to Use It

a. How to Insert a Food Thermometer

- i. The probe of the thermometer should be placed in the thickest part of the food, away from bone, fat, or gristle.
 - 1. Digital: Insert 1/2 inch or less for 5 seconds
 - 2. Dial: Insert 2 inches for at least 20 seconds
 - 3. If the food is liquid, stir and then measure the temperature in the center.

b. How to Read a Food Thermometer

- i. Digital: Read the temperature from the digital display. Check your thermometer's user manual for settings and additional features.
- ii. Dial: The needle will point to the temperature of the food. Most dial thermometer ranges are in Fahrenheit and Celsius.
- iii. If inserted correctly, most available food thermometers will give an accurate reading within 2 to 4 °F.

c. Safe Cooking Temperatures

- i. Chef & USDA Recommended Temps and Minimum Done Temps for Food Safety are listed for the learner to review

- d. Knowledge Check
- 5. When to Use It
 - a. Cooking, Cooling, Reheating: Food temp should be taken when food is cooking, cooling, or reheating.
 - i. Cooking: Animal products must be cooked to a minimum internal temperature before they are safe to eat. Refer to your local cooking temperature regulations or the *Safe Cooking Temperatures* slide for details.
 - ii. Cooling: Foods should be COOLED from 135°F (57°C) to 70°F (21°C) in two hours or less, and from 70°F to the refrigeration temperature, 41°F (5°C), in four hours or less (for a total of six hours or less).
 - iii. Reheating: When reheating food, you may reheat it to any temperature if it will be served immediately. It must be reheated to 165 (74°C) if it is being held. If food is not reheated within 2 hours, it should be disposed of.
 - b. Knowledge Check
- 6. Scenario
 - a. Cleaning
 - b. Calibration
 - c. Insert and Read Temp of Tuna Steak
 - d. Insert and Read Temp of Pre-cooked Ham
- 7. Completion
 - a. Certificate

Instructional Strategies

- The content will be chunked into units. Each unit contains 1-4 short lessons and a Knowledge Check.
- Throughout most of the course, learners must engage with the slide in some way or the audio needs to complete before the next button is enabled. This will prevent users from missing information.
- The lessons will be completed in sequential order, although the learner can refer back to previous slides using the previous button or the menu.
- The course provides opportunities for guided practice through interactive simulation/scenarios.
- Feedback is provided for each assessment, and learners can try again if they submit incorrect answers.

Resources and More Information:

<https://www.nj211.org/smart-food-safety-practices>

<https://www.nj211.org/smart-food-safety-practices>

<https://www.fsis.usda.gov/food-safety/safe-food-handling-and-preparation/food-safety-basics/kit-thermometers>