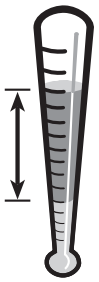
TEACHING TIPS

Control Time & Temperature



Learner/worker Objectives:

- To gain knowledge about conditions bacteria need to grow.
- To understand the importance of controlling time and temperature to control the growth of bacteria.
- To use a food thermometer to monitor temperature (and time).

Introduction

1 **Bacteria need the right conditions to grow and multiply.** Most bacteria are not harmful but when they are allowed to grow and multiply some can make us sick.

2 **Bacteria need the right temperature to grow.**

- They grow at temperatures between 41° F and 1**35°** F - the Danger Zone. (Your body temperature, 98.6° F, is an ideal temperature for germs to grow and make you sick.)
- Freezing does not kill bacteria.
- Some bacteria may even grow in the refrigerator.

3 **Bacteria need enough time to grow.** With the right conditions bacteria will grow and multiply to dangerous levels within 4 hours.

- It's important to keep foods out of the Danger Zone. Food must NOT be allowed to stay in the Danger Zone for more than 4 hours.

The Food Connection

Bacteria need food to grow.

1 **Bacteria need foods** that are moist and have some nutrients like protein or carbohydrate.

TIP *Ask what types of foods these would be.*

2 These are called **"Time and Temperature Control for Safety"** foods **(TCS)** because they support bacterial growth. They include most animal foods and some plant foods:

meats

fish and shellfish

cut melons, cut leafy greens, cut tomatoes

poultry

soy products like tofu cooked rice and

other grains milk or cheese

sprouts

grilled onions

raw shell eggs

garlic in oil

baked potatoes

cream or custard desserts cooked beans

cooked vegetables

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Control Time and Temperature

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Keep Food Safe

Keep foods out of the Danger Zone to keep bacteria from growing in food.

Distribute and Review "Control Time & Temperature" beginning with 41° F.

1 Know the temperatures to keep food out of the Danger Zone.

KEEP FOODS COLD - below 41° F. Cold temperatures (below 41° F) slow the growth of bacteria. This is the temperature all **TCS** should be when you receive, store and use them throughout preparation. Some foods need to be cold when you serve them. Leftovers need to cool down quickly to get to 41° F.

Store foods so they are 41° F or below.

- Check to see if the refrigerator is no higher than 38° F and the freezer at 0° F.
- Prechill ingredients for foods you serve cold (canned tuna for tuna salad, cooked eggs for egg salad).

Thaw foods to keep bacteria from growing. Keep these foods out of the Danger Zone:

- In the refrigerator.
- In cold running water (70° F).
- In the microwave - then cook the food directly.
- By cooking directly - thin foods like hamburger patties, chicken nuggets, shaved steak, etc.

Hold and Serve foods out of the Danger Zone Keep cold foods at 41° F or below.

• Keep platters and containers of food refrigerated until time to serve them. For a cold food buffet, display foods on ice.

• Never leave cold food out over 4 hours, 1 hour if temperatures are above 90° F.

KEEP FOODS HOT - Cooking foods for a long enough time at high enough temperatures, can kill bacteria that can make you sick.

Cook foods to kill bacteria.

Review minimum internal temperatures for cooking foods.

145° F - mostly foods from animals with 4 legs or no legs: roast beef, pork, veal, lamb etc; fish, seafood and shell eggs for single order.

155° F - mostly foods from animals with 4 legs or no legs that are ground or mixed: ground meats (beef and pork), injected meats, comminuted fish and meats game meats and raw, pooled shell eggs.

165 ° F - mostly foods from animals with 2 legs and anything to do with stuffing: any poultry (whole, parts or ground), stuffing containing or in meat, fish and poultry, and any food that is cooked in a microwave.

Hold & Serve foods out of the Danger Zone.

- Keep hot foods hot at 140° F or above.

Cool hot foods quickly. Get hot foods out of the Danger Zone - bring the temperature of cooked foods to below 41° F quickly.

• Cool foods from **135**° F to 70° F in 2 hours or less, then from 70° F to 41° F within 6 hours total.

Describe the way(s) that you do this.

They may include:

- Divide large amounts of leftovers into small, shallow containers for quick cooling.
- Chill large pots of soup, stew or sauce in ice bath; use an ice paddle.
- Cut large pieces into smaller sizes.
- Put containers in a blast chiller.

Reheat foods rapidly (within 2 hours) to 165° F for hot holding. Reheat foods in the oven or on top of the stove, NOT on the steam table.

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2 Take Temperatures.

The only way you know if the food has reached the proper temperature is to use a food thermometer.

Use a food thermometer to check the temperature of foods when you:

- Receive them.
- Store them in the refrigerator.
- Cook them.
- Hold them in hot holding or cold holding and during transportation.
- Reheat them.

Demonstrate how to use a thermometer to check temperatures.

Show:

- The **thermometer** you use.

- **How** you clean and sanitize it after each use:
  CLEAN - wipe off food particles.
  SANITIZE - put the thermometer stem in a sanitizing solution or wipe the thermometer stem with an alcohol swab.
  AIR DRY

- **How to check temperatures**
  with a bi-metallic stem thermometer.
  - Stir food before measuring.
  - Insert the sensing tip at least 2" deep into the center or thickest part of the food product.*
  - Wait until the thermometer reaches and holds that temperature for 15 seconds.
  - Check the temperature in a two or more places in the product.

- Check foods during holding every 2 hours.

* *If you use a digital thermometer, the sensing is on the tip of the thermometer. This thermometer works best for thin foods and does not require inserting to a 2" depth.*

3 Monitor and Record Temperatures.

Show how and when to record temperatures in daily logs for food:

- in the refrigerator
- while cooking
- while holding

4 Calibrate the food thermometer.

Demonstrate (or explain who is responsible for) calibrating the thermometer.

Resources and Fact Sheets

Use the following resources and fact sheets for more information.

- ***2013 FDA Food Code***
  https://www.fda.gov/food/fda-food-code/food-code-2013

- Massachusetts Department of Public Health
  https://www.mass.gov/orgs/food-protection-program

- UMass Extension Nutrition Education Program
  https://ag.umass.edu/nutrition

- Massachusetts Partnership for Food Safety Education **www.mafoodsafetyeducation.info**