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The Flow of Food: An Introduction



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Objectives:

By the end of this chapter, you should be able to identify the following:

- How to prevent cross-contamination
- How to prevent time-temperature abuse
- How to use and maintain thermometers correctly



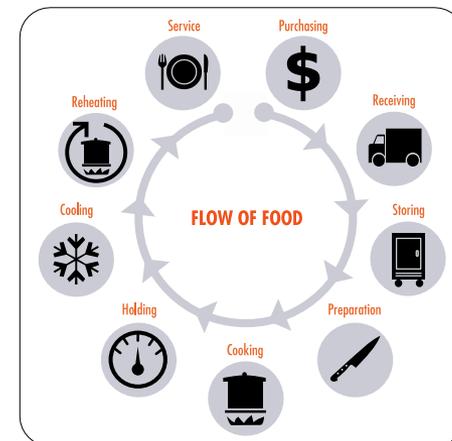
The Flow of Food

The flow of food:

The path that food takes through your operation

To keep food safe throughout the flow of food:

- Prevent cross-contamination.
- Prevent time-temperature abuse.



Preventing Cross-Contamination

Separate equipment:

- Use separate equipment for raw and ready-to-eat food.



Clean and sanitize:

- Clean and sanitize all work surfaces, equipment, and utensils before and after each task.





Preventing Cross-Contamination

Prep raw and ready-to-eat food at different times:

- If using the same prep table, prep raw meat, fish, and poultry at a different time than ready-to-eat food.
- When possible, prep ready-to-eat food before raw food.





Preventing Cross-Contamination

Prep raw and ready-to-eat food at different times:

- Separate raw meat, poultry, and seafood from unwashed and ready-to-eat fruits and vegetables.

Buy prepared food:

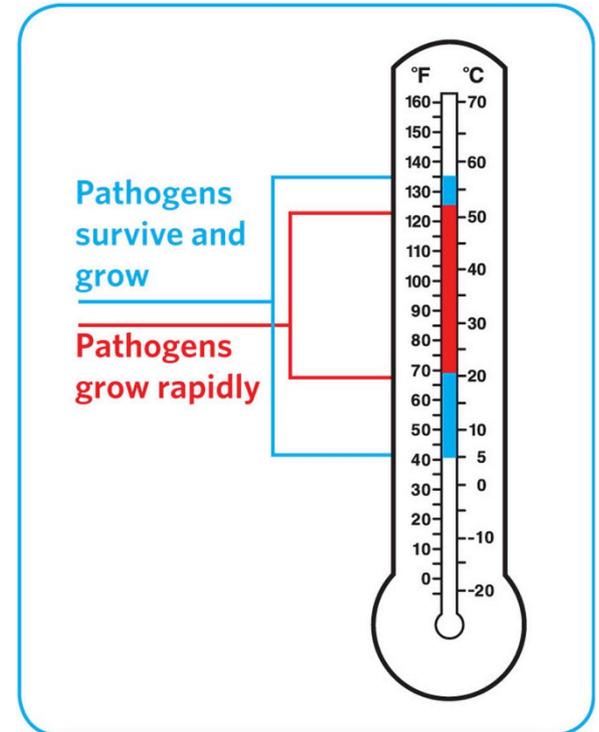
- Buy food items that don't require much prepping or handling.



Preventing Time-Temperature Abuse

Time-temperature control:

- Food held in the range of 41°F and 135°F (5°C and 57°C) has been time-temperature abused.
- Food is being temperature abused whenever it is handled in the following ways:
 - Cooked to the wrong internal temperature
 - Held at the wrong temperature
 - Cooled or reheated incorrectly



Preventing Time-Temperature Abuse

Avoid time-temperature abuse:

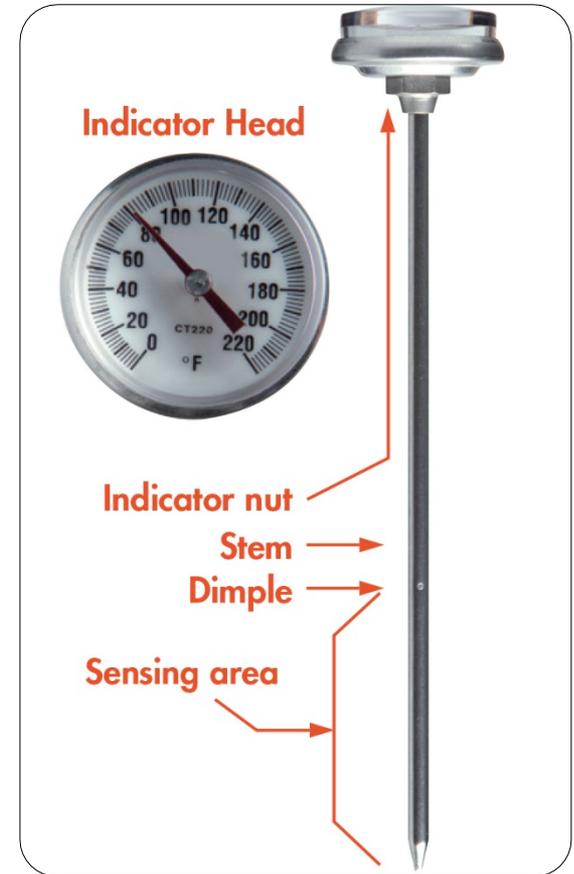
- Monitor time and temperature.
- Make sure the correct kinds of thermometers are available.
- Regularly record temperatures and the times they are taken.
- Minimize the time that food spends in the temperature danger zone.
- Take corrective actions if time-temperature standards are not met.



Monitoring Time and Temperature

Bimetallic stemmed thermometer

- Measures temperature through a metal stem
- Has a sensing area from the tip to the dimple
 - The entire sensing area must be inserted into the food.
- Has a calibration nut to keep the thermometer accurate



Monitoring Time and Temperature

Thermocouples and thermistors:

- Measure temperature through a metal probe
- Display temperatures digitally
- Have a sensing area on the tip of their probe
- Come with interchangeable probes:
 - Immersion probe
 - Surface probe
 - Penetration probe
 - Air probe





Monitoring Time and Temperature

Infrared (laser) thermometers:

- Used to measure the surface temperature of food and equipment.
- Hold as close to the food or equipment as possible.
- Remove anything between the thermometer and the food, food package, or equipment.
- Follow manufacturers' guidelines.





Monitoring Time and Temperature

Maximum registering thermometer:

- Indicates the highest temperature reached during use
- Used where temperature readings cannot be continuously observed



Time-temperature indicators (TTI):

- Monitor both time and temperature
- Are attached to packages by the supplier
- A color change appears on the device when time-temperature abuse has occurred



General Thermometer Guidelines

When using thermometers:

- Wash, rinse, sanitize, and air-dry thermometers before and after using them.
- Calibrate them at these times:
 - After they have been bumped or dropped
 - After they have been exposed to extreme temperature changes
 - Before deliveries arrive
 - Before each shift



General Thermometer Guidelines

When using thermometers:

- Make sure they are accurate:
 - If used to check food, thermometers must be accurate to $\pm 2^{\circ}\text{F}$ or $\pm 1^{\circ}\text{C}$.
 - If used to check air temperature, thermometers must be accurate to $\pm 3^{\circ}\text{F}$ or $\pm 1.5^{\circ}\text{C}$.
- Only use glass thermometers if they are enclosed in a shatterproof casing.
- Insert the thermometer stem or probe into the thickest part of the food.
- Take more than one reading in different spots.
- Wait for the thermometer reading to steady.





Calibrating Thermometers

Ice-point method:



1. Fill a large container with ice, and add tap water.



2. Submerge the sensing area, and wait 30 seconds.



3. Adjust the thermometer so it reads 32°F (0°C).