

The aroma of food cooking actually means that precious molecules of flavor are escaping from the food. *Sous vide* locks all of those flavor molecules in with the vacuum seal. *Sous vide* foods do not lose flavor. In fact, in some cases, the flavors actually intensify and improve.

Microwave Cooking

Many foods can be baked or roasted in a microwave oven. However, microwave ovens do not give the same results as convection or conventional ovens because they cook food with waves of energy or radiation—microwaves—rather than with heat. Microwaving is good for some recipes, but many foods can quickly become tough and rubbery if microwaved too long.

Microwave cooking alters and denatures protein, causing it to toughen. This can be a problem in breads, eggs, and meats. Cooks can use special techniques with specific microwave recipes to maintain the quality of the finished recipe. Because there is no external heat source, there is no browning. Food cooks because microwave radiation increases molecular activity inside the food. It begins at the center, so the surface does not turn a crispy golden brown while the inside slowly cooks, as in a conventional oven.

Glass and ceramic cookware and plastics that are labeled microwave safe can be used in the microwave oven. Never use brown grocery bags, newspaper, metal, or foil in the microwave oven. Figure 5.42 shows a microwave oven.

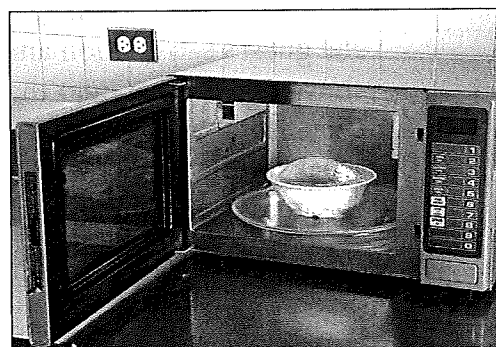


Figure 5.42: Microwaves are used in restaurant and foodservice operations primarily to thaw and reheat foods.

Determining Doneness

There are two important qualities that cooks look for to determine a product's doneness:

- Has it achieved the desired texture?
- Has it reached the minimum internal temperature it needs to be safe?

For products that are made in large quantities, many restaurant and foodservice operations will test the products to determine the standardized cooking temperature and the length of cooking time that will produce the same doneness every time. This type of control depends on cooking the same size or quantity of product every time.

It is important to check the temperature of the item both in the tests that lead to standardized cooking times and temperatures and in the determination of doneness in smaller quantities and individual items such as a steak or chicken breast. Never assume that an item is at the right temperature because it has finished its standardized cooking time. Figure 5.43 shows a thermometer in a golden brown turkey.

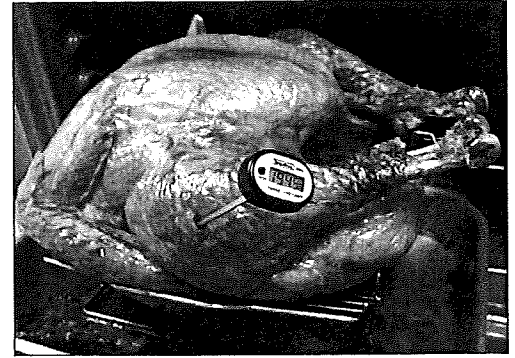


Figure 5.43: To determine doneness, insert a thermometer to check temperature.

An experienced chef can estimate the degree of doneness in items like meat and fish by pressing the surface of the item. The more done the item is, the more resistance it has. The reverse is generally true for vegetables. As the fruit or vegetable cooks, its fibers break down and the item becomes softer.

The plating, portioning, and garnishing of a finished product will determine the guest's satisfaction and the profitability of the restaurant. **Portioning** is the amount of an item that is served to the guest. **Overportioning** results in increased cost and lower profit from an item. **Plating** is the decision about what serving vessel will be used to present the product, as well as the layout of the item on the plate or in the bowl and the garnishing of the item. Figure 5.44 shows a comparison of two plated dishes.



Figure 5.44: Contrasting plates: one plated neatly and one plated badly.

Garnish enhances the food being served. A garnish should be something that will be eaten with the item, functioning as a flavor component while visually adding to the appearance of the item. Simple garnishes are the best. Garnishes can be mixed with the other components of an item or added at the very end to enhance presentation. The addition of diced sun-dried tomato to rice pilaf brings both color and flavor, whether it is cooked into the rice or sautéed and used to top the rice at plating.

[fast fact]

Did You Know...?

When selecting a garnish, consider color. The color of the garnish affects the mood or tone of the dish.

- Green: Freshness and vitality
- Brown or gold: Warmth, comfort, richness
- Orange or red: Intensity, hunger

There are several things to consider when arranging the plate:

- Look at the plate or bowl as a picture frame. Select the right dish for the portion size. Keep the food off the rim of the dish.
- Maintain a good balance of colors. Remember, three colors are usually enough. Too many colors are unappetizing.
- Height makes any plate more attractive. Placing ingredients to bring height to a plate presentation is more interesting and appealing than simply spreading everything flat. Attractively prop the protein on the starch to bring height and interest. Do not hide the starch.
- Always cut the ingredients neatly and uniformly.
- Keep the arrangement of ingredients simple. Remember, the customer should want to eat the food, not just look at it.

The proper storage of food, both prepared and unprepared, affects the quality of the food prepared and served. Follow these storage guidelines:

- Wrap food properly to prevent drying and cross-contamination.
- Cool and store food properly to prevent pathogen growth.
- Store food in the correct type of container to prevent contamination and to protect flavor.
- Label and date containers to allow identification and rotation.

Summary

In this section, you learned the following:

- Heat is transferred to food in three ways:
 - **Conduction:** Heat is transferred from one item to another when the items come into direct contact with each other.
 - **Convection:** Heat transfer is caused by the movement of molecules from a warmer area to a cooler one.
 - **Radiation:** This method does not require contact between the heat source and the food being cooked.
- Types of cooking methods include dry-heat cooking, moist-heat cooking, and combination-cooking methods.
- In dry-heat cooking, cook food with or without a fat, either by direct heat or by indirect heat in a closed environment. Broiling, grilling, roasting, baking, sautéing, pan-frying, stir-frying, and deep-frying are kinds of dry-heat cooking.
- Moist-heat cooking produces food that is delicately flavored and moist. Serve it as a separate course or used as a sauce base. Simmering, poaching, blanching, and steaming are techniques used in moist-heat cooking.
- Combination cooking uses techniques from both dry-heat and moist-heat cooking. Braising and stewing are types of combination cooking.
- To determine when food is done cooking, identify if the product has its desired texture and required minimum internal temperature.
- There are a number of guidelines for plating food that has finished cooking, such as selecting the right dish, maintaining a good balance of colors, adding some height to the plate, cutting the ingredients uniformly, and keeping the arrangement of food simple.
- The guidelines for storing food include the following:
 - Wrap food properly to prevent drying and cross-contamination.
 - Cool and store it properly to prevent pathogen growth.
 - Store it in the correct type of container to prevent contamination and to protect flavor.
 - Label and date food to allow identification and rotation.

Section 5.3 Review Questions

- 1 Explain the differences among conduction, convection, and radiation.
- 2 How do dry-heat and moist-heat cooking methods differ?
- 3 What is combination cooking?
- 4 What is carryover cooking?
- 5 Benny Gordon says that part of *mise en place* is determining which cooking method to use for each food. In a Cajun restaurant, which types of cooking might be most common? Provide an example of a dish prepared using each cooking method.
- 6 Why is it important for Alex to recognize doneness in different foods?
- 7 Which type of cooking would take longer, poaching or simmering? Why? Describe each process.
- 8 Why are braising and stewing called combination-cooking methods?

Section 5.3 Activities

1. Study Skills/Group Activity: Pick a Protein

Work with two other students to select a protein (not one used in the activity below), and identify three appropriate techniques for cooking it. For each technique, develop a recipe for the protein.

2. Activity: Cooking Methods

Which of the cooking methods discussed in the text are appropriate or inappropriate ways to cook the following items and why?

- Cod fillet
- Chicken thigh
- T-bone steak
- Chunks of lamb shoulder
- Duck breast

3. Critical Thinking: Combination Cooking

Several classical dishes, such as fricassées and daubes, are made with combination-cooking techniques. Select a dish from the braising or stewing categories on pp. 335–337, and write two paragraphs on its history, ingredients, and cooking method.