

# Fruits, Vegetables, and Legumes

## SECTIONS

25.1 Fruits

25.2 Vegetables

25.3 Legumes

## WRITING ACTIVITY

### Freewrite About Yourself

**F**reewrite about your thoughts and feelings toward vegetables. Discuss whether you like or dislike vegetables, and why or why not. Also discuss your favorite and least favorite vegetables.

### Writing Tips

- 1 Write whatever comes to mind.
- 2 Write without stopping to reread, rephrase, or rethink.
- 3 Do not be concerned about the quality of the writing.

### EXPLORE THE PHOTO

There is a wide variety of fruits, vegetables, and legumes. *Do you think fruits, vegetables, and legumes are good sources of nutrition?*



# Fruits

## Reading Guide

### Before You Read

**Use Diagrams** As you read through this section, write down the main idea. Write down any facts, explanations, or examples you find in the text. Start at the main idea and draw arrows to the information that directly supports it. Then, draw arrows from these examples to any information that supports them.

### Read To Learn

#### Key Concepts

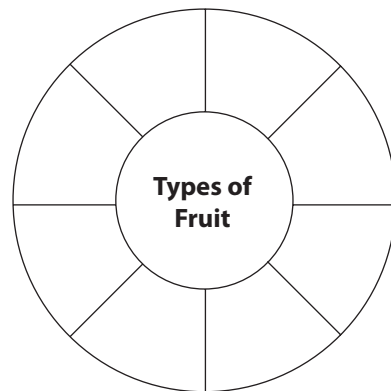
- **Distinguish** between the different market forms of fruit.
- **Identify** dry and moist methods of cooking fruit.


#### Main Idea

Fruits add nutrition, flavor, color, and texture to a meal. A chef should understand the type and forms of fruit and how to serve and store each one.

### Graphic Organizer

As you read, use a describing wheel like this one to list the eight types of fruit.



 **Graphic Organizer** Go to this book's Online Learning Center at [glencoe.com](http://glencoe.com) for a printable graphic organizer.

*Fruits can be an exciting part of salads, meals, and desserts.*

### ACADEMIC STANDARDS

#### English Language Arts

**NCTE 12** Use language to accomplish individual purposes.

#### Mathematics

**NCTM Data Analysis and Probability** Understand and apply basic concepts of probability.

#### Science

**NSES C** Develop an understanding of the cell.

**NCTE** National Council of Teachers of English

**NCTM** National Council of Teachers of Mathematics

**NSES** National Science Education Standards

**NCSS** National Council for the Social Studies

# Types of Fruit

From appetizers to desserts, fruits add texture, nutrition, color, and flavor to any meal. Fruits come from flowering plants. They contain at least one seed. Fruits are divided into eight categories: citrus fruits, melons, berries, drupes ('drōops), pomes, grapes, tropical fruits, and exotic fruits. A **drupe** has soft flesh, thin skin, and one pit, or stone. You need to understand the types and forms of fruits. You also need to know how to serve and store each of them.

## Fresh Fruit

Fresh fruit, when in season, adds color and flavor to any meal. **In season** means during the fruit's main growing season. Fruits that are locally out of season can be shipped from other parts of the world where they are in season. Knowing what is in season in your area allows you to plan seasonal menus. This will also help keep costs down. Fresh fruit contains nutrients, such as vitamins and phytochemicals. A phytochemical is a natural chemical found in plants that may help reduce the risk of some types of cancer.

The type of fruit, its nutritional content, and the food product in which it will be used determine whether a foodservice operation purchases ripe or unripe fruit. These factors also determine the grade of fruit purchased.

## Grading

The USDA has a voluntary grading program for fresh fruits. Grades are based on a variety of factors, including shape, size, texture, color, and defects. These grades are:

- U.S. Fancy: Premium quality
- U.S. No. 1: Good, average quality
- U.S. No. 2: Medium quality; represents most produce
- U.S. No. 3: Lowest grade quality

Most foodservice operations purchase U.S. Fancy grade products when they serve fresh fruit. **Lesser**, or lower, grades of fruits are typically made into jams, jellies, and sauces.

## ❖ Nutrition Notes ❖

### Nutrients in Fruits

Fruits are packed with complex carbohydrates, water, vitamins, minerals, and fiber. They contain little or no fat and cholesterol. Puréed fruits such as plums, prunes, and applesauce are used to reduce or replace oils in baking. Citrus fruits, grapes, cherries, and berries are good sources of phytochemicals.

**CRITICAL THINKING** *Why might puréed fruits be a good replacement for oils in baking?*

## Purchase Fresh Fruit

Fresh fruits may be purchased ripe or unripe. They are sold by count or weight and packed in flats, lugs, or cartons. A **lug** is a box, crate, or basket in which produce is shipped to market. Lugs often hold 25 to 40 pounds of produce. Flats are shallow boxes, crates, or baskets that are used to ship pints and quarts of produce such as strawberries. States have different weight requirements for each type of packaging.

Some fruits, such as melons, berries, and pineapples, are purchased cleaned, peeled, or cut. They may be purchased in bulk with sugar and preservatives added or packed in large containers of water. Although purchasing prepared fresh fruit may save time in trimming and cutting, the price is often greater. Also, the taste and freshness may **diminish**, or decrease, as a result of the processing.

## Ripen and Store Fresh Fruit

Fruits change in several ways as they ripen. To be **ripe** means that the fruit is fully grown and ready to eat. They grow into their full size, and the color deepens and changes. The flesh becomes soft, juicy, and less tart, and the flavor and aroma intensify. Fresh fruits should be used at the height of their ripeness, as judged by taste and appearance.

Ripening does not stop when a fruit is perfectly ripe. It is important to understand

when a fruit is ripe and how much longer it will take until it spoils. Some fruits, such as bananas, are often purchased unripened, since they continue to ripen after harvesting. Other fruits, such as pineapples, ripen only on the plant and must be rushed to market.

Fresh fruits in season provide color and flavor to any meal. Fruits give off **ethylene** ('e-thə-,lēn) **gas**, an odorless, colorless gas that is emitted naturally as fruits ripen. Unripened fruits can be exposed to ethylene gas to encourage ripening. To stop fruits from ripening further, keep them chilled and isolated from other fruits.

Apples, melons, and bananas give off large amounts of ethylene gas. Store them separately from more delicate fruits and vegetables.

## Canned Fruit

Commonly canned fruits include pears, peaches, and pineapples. Fruits can be canned in heavy or light syrup, in water or fruit juice, or in solid pack cans that contain little or no water.


Fruits are exposed to high temperatures during canning. The heat destroys microorganisms and eliminates oxidation, both of which cause fruit to spoil. This sealed environment also slows the spoiling of the fruit. The heat required in canning softens fruit, but it does not affect the nutritional content of the fruit.

## Purchase and Store Canned Fruit

Canned fruits are available in different standard-size cans. Cooked fruit products, such as pie fillings, also come in cans. Store canned fruit on shelves in a cool, dry area. After opening any kind of canned fruit, transfer any leftover fruit to a storage container, label, date, and refrigerate.

Canned fruit has an extended shelf life as long as the can remains sealed and undamaged. Do not purchase dented cans. If a can has a bulge, throw it away immediately without opening it. Bulges are a sign that botulism, a foodborne illness, is present. People can become ill if they eat food from these damaged cans.



 **Beautiful Fruit** Fresh fruits can be a colorful and flavorful treat. *Will pineapple ripen once it has been picked?*

## Fruits

**Citrus Fruits** Citrus fruits have a thick, firm rind covered by a thin layer of colored skin, called the zest. The soft, white layer between the zest and the flesh of the fruit is called the pith. The pith is slightly bitter. The flesh of citrus fruits is segmented and acidic. They grow on trees and shrubs and are harvested when ripe. Quality citrus fruits are not blemished, or soft and puffy. Citrus fruits will not continue to ripen after they are picked.



**Melons** Sweet melons are fruits with a netted skin or a smooth rind that range in color from creamy to jade green. Sweet melons belong to the class of muskmelons (<sup>1</sup>mæsk-,mē-ləns). Quality melons are firm, heavy for their size, and have a good aroma. Watermelons are in a class of their own. Some melons are picked when they are ripe. Others ripen after being picked. Because they are 90% water, melons are usually served raw or puréed into soups or sorbets.

**Berries** Berries are juicy, thin-skinned fruits with tiny seeds. They grow on bushes and vines and are picked when fully ripened. Berries will not continue to ripen after they are picked. Quality berries are sweet, plump, and even in color.



**Drupes** Drupes, also known as stone fruit, have soft flesh, thin skin, and one pit, or stone. Drupes can be picked ripe or they can ripen after they are picked. Quality drupes are firm and plump, without bruises or blemishes. These fragile fruits grow on shrubs and trees.

**Pomes** Pomes are firm, thin-skinned fruits that grow on trees. They have a central core filled with tiny seeds. Pomes can be picked ripe or be ripened after they are picked. Quality pomes have smooth skin and no blemishes, bruises, or soft spots.



**Grapes** Grapes grow in clusters on vines. Their flavor and color are found mostly in their skin. Grapes are almost always eaten raw. They can be picked ripe or ripen after they are picked. Quality grapes are plump and juicy, with rich color.

**Tropical Fruits** Tropical fruits grow in hot, tropical regions of the world. These fruits ripen after they are picked. Because of quick transportation and distribution, these fruits are readily available in the United States. Quality tropical fruits are firm, plump, unblemished, and have good color.



**Exotic Fruits** The exotic fruit category contains many types of unusual fruits. These fruits can be picked ripe or ripen after they are picked. Quality exotic fruits are semisoft, slightly heavy, and have good color. The exotic fruits shown here are available in most areas of the United States.

## Frozen Fruit

Fresh fruit can be effectively preserved through freezing. Freezing stops the growth of microorganisms that cause food to spoil. Freezing does not affect the fruit's nutritional value, but it does change the texture of the fruit. Freezing breaks down the cell structure of fruit when the water in the fruit expands during freezing. Then, as fruit thaws, it loses shape because part of the cell structure has been broken down. This leaves the fruit mushy.

Many fruits, such as pears and berries, are individually quick frozen (IQF). This reduces the number of ice crystals that form, keeping the quality of the frozen product higher. It also helps the fruit to retain its shape. You do not have to use, or thaw, the whole container at one time.

## Grading

Frozen fruits are labeled U.S. Grade A—Fancy, U.S. Grade B—Choice or Extra Standard, or U.S. Grade C—Standard. The characteristics of each are as follows:

- U.S. Grade A: Premium quality
- U.S. Grade B: Above average quality
- U.S. Grade C: Medium quality

## Purchase and Store Frozen Fruit

Frozen fruits are available sliced, packed in sugar syrup, whole, or pitted, peeled, and sliced. Frozen purées are also available. All forms of frozen fruits should be sealed in moisture-proof bags or other containers. Frozen canned fruits are also available. They come in cans or large plastic containers and usually contain a large amount of sugar and water.

After frozen fruit is purchased, immediately transfer fruit that will not be used to a freezer so it does not thaw. Keep the temperature at a constant 0°F (−18°C) or below. If the temperature is allowed to vary, the fruit may develop freezer burn.

## Dried Fruits

Drying is another common technique for preserving fruits. Popular dried fruits include bananas, apples, apricots, grapes, plums, and figs. You can add dried fruits to biscuits, muffins, cakes, and pies.

Dried fruits are also used in compotes and chutneys. A **compote** is fresh or dried fruits that have been cooked in a sugar syrup. **Chutney** is a condiment made of fruit, vinegar, sugar, and spices. It can be smooth or chunky, hot or mild. Chutneys are served cold, warm, or hot. Compotes and chutneys often accompany poultry and meats.

**Rehydrate** ((rē-'hī-drāt), or add water into, dried fruits before use. This is done by placing the fruit in boiling water for one-half to one minute. Fruit juices formed by soaking dried fruits in hot liquid until the liquid absorbs the flavor of the fruit can be used in fruit soups and smoothies.

## Purchase and Store Dried Fruit

Dried fruits are vacuum packed, or shrink-wrapped, for purchasing and shipping. They are available in 1-pound packages. They also come in 30-pound bulk sizes.

Store dried fruits in labeled and dated airtight containers. Keep the containers in a cool place out of direct sunlight to prevent mold from forming. Dried fruits with low moisture, such as raisins, spoil more quickly than other types. Purchase amounts of dried fruits that will be used within a month.

 **Reading Check** **Explain** How are canned fruits purchased and stored?

## Cooking Fruit

Although fruits are usually served raw, they also can be cooked using a variety of methods. The most common cooking techniques include baking, poaching, simmering, deep-frying, sautéing, broiling, and grilling.

## Grill Fruit

- 1 Prepare fruit for grilling. Place fruit on a heated grill. Cook until grill marks develop.
- 2 To create crosshatch marks, carefully lift the fruit and turn it 90 degrees. Place the fruit back down on the grill.



- 3 When the grill marks are set, turn the fruit over and repeat the process. Cook until the fruit reaches the desired doneness.



When you cook fruits, take care not to overcook them. If you do, they will become mushy and lose their flavor. Add sugar or acid, such as lemon juice, to help prevent overcooking. The fruit takes the sugar or acid into its cells, which helps keep the fruit firm and retain its form.

### Preparation of Fruit

Before you prepare and cook fruit, you need to gather your ingredients, smallwares, and utensils. You also need to complete the mise en place for the fruit. Each type of fruit will require different pre-preparation. For some fruits, such as bananas, mangoes, and papayas, your first step in pre-preparation would be to soften and ripen them at room temperature.

In general, you can follow these guidelines:

1. Wash the fruit in cold water. Drain well. Remove any stems. If the fruits have skin that needs to be peeled or pulled, do so now.
2. Cut the fruit into halves, quarters, slices, or chunks.

3. Remove any seeds and pits. Some fruit may also need to be cored.
4. To prevent enzymatic browning, dip the fruit in citrus juice. This step is not necessary for all fruit.

### Cooking with Dry Heat

Dry cooking methods for fruit include broiling and grilling, baking, sautéing, and deep-frying. Take care not to dry out the fruit by overcooking.

#### Broiling and Grilling

Bananas, apples, peaches, and pineapples are often broiled or grilled. The fruits must be quickly cooked so that they do not become mushy and lose their shape. These fruits can be sliced or served as halves. Often, they are coated with honey or sugar, or sprinkled with lemon juice, cinnamon, or nutmeg.

Place fruits to be broiled on a sheet pan. For grilling, place large fruits directly on the grill or thread them onto skewers. Rotate thick slices to make sure they cook all the way through.



## Baking

Many fruits can be baked into delicious desserts. For example, berries, peaches, and apples can be baked with a crust to make fruit cobblers. A **cobbler** is a deep-dish fruit dessert. These can be served with whipped cream or vanilla ice cream. You can also bake sweet and tart fruits together to provide an interesting contrast of flavors. Or, try stuffing whole, cored apples or peach halves with raisins; then drizzle them with honey and bake. The fruit skins help hold in moisture and flavor.

Some fruits are added to meats and then baked. For example, ham is often baked with pineapple. Other fruits, such as plums, can be cooked with poultry to make a flavorful sauce. Fruit juices and purées can also be used with baked meats to create sauces that bring out the flavor of the meat.

## Sautéing

When fruits are sautéed in butter, sugar, and other spices, they develop a sweet, rich, and syrupy flavor. You can serve bananas,

cherries, pears, and apples this way for a delicious dessert. To sauté fruits, first peel and core them and remove any seeds. Cut them into neat, even slices, place them in a sauté pan, and cook over high heat. Sautéed fruits can be used in a main course and as desserts served with ice cream. Sautéing will create a crispy crust on the outside of the fruit pieces.


## Deep-Frying

A few fruits, such as bananas, pineapples, and apples, can be coated in batter and deep-fried. Peel, core, and slice the fruit into neat, even slices. If the fruit is too moist, dry it with a paper towel so that the batter will stick to it. Then, the fruit can be deep-fried, as described in Chapter 15.

## Cooking with Moist Heat

Two moist cooking methods that are commonly used for cooking fruit are poaching and simmering. They can both maintain moisture in the fruit.



 **Fruit as Dessert** Poached fruit is often used in salads or desserts. *What types of fruit might be poached?*

## Poaching

In poaching, fruits are submerged in various liquids, such as water or sugar syrup. Apples, apricots, peaches, pears, and plums are often poached. Poaching is done at very low temperatures, so it takes some time to cook fruits using this method. The slow cooking time helps the fruit retain its shape and flavor and soften gradually.

## Simmering

Simmering is used to make fruit compotes and stewed fruits. Fresh, frozen, canned, or dried fruits can be simmered successfully. Serve stewed or simmered fruits hot or cold, as appetizers, side dishes, or desserts.

To simmer fruit, first peel, core, and slice the fruit. Place it in a pan with cooking liquid, such as water, sugar, syrup, honey, and spices. Bring the liquid to a simmer. Cook until the fruit is done, and add a sweetener if desired. Garnish the simmered fruit with some of the liquid from simmering. This will make an attractive plate.


## Plate and Garnish Fruits

The fundamentals of plating apply to all fruits. Strive for an attractive plate that is colorful and well balanced. It is important to use a variety of different fruits. This will provide better plate composition. Do not allow drippings to touch the rim of the plate. Also, avoid leaving thumbprints on the rim.

Compotes are served in a glass or crystal **compotier** (*käm-põt-tē-'yā*). A compotier is a deep, stemmed dish used to serve compotes, candies, and nuts.

## Fondue

The term **fondue** (*fän-'dü*) refers to dipping foods into a central heated pot. In the case of fruit fondue, bite-size chunks of fresh fruits are often dipped into a chocolate sauce made of melted chocolate and cream.

 **Reading Check Explain** How would you decide which cooking method to use with fruit?

## SECTION 25.1 After You Read

### Review Key Concepts

1. **Identify** the uses of dried fruits.
2. **Explain** how to prepare fruit for cooking.

### Practice Culinary Academics

#### English Language Arts

3. Write a letter to a cooking magazine suggesting three new dishes that can be made with fruit. Describe each dish, the cooking method, and give any important information about each dish.

**NCTE 12** Use language to accomplish individual purposes.

#### Science

4. **Procedure** Cook fruit using different methods. Observe any changes.  
**Analysis** What causes fruit to change texture as it is cooked? Conduct research to discover the answer. Write a summary of your discovery.

**NSES C** Develop an understanding of the cell.

#### Mathematics


5. This summer, Alex's ice cream shop is offering six different fresh fruit sorbets: Raspberry, Strawberry, Orange, Pineapple, Lemon, and Mango. How many different ways can Alex arrange these names on the menu board?

#### **Math Concept Arrangements and Factorials**

When you have  $n$  items, you can arrange all of them  $n!$  ways. The "!" stands for "factorial," which is the product of all sequential integers between 1 and  $n$ .

**Starting Hint** Alex has 6 total sorbet names, so he can arrange them in 6! ways. To compute factorials, perform the appropriate multiplication. For example,  $3! = 3 \times 2 \times 1$ , while  $4! = 4 \times 3 \times 2 \times 1$ .

**NCTM Data Analysis and Probability** Understand and apply basic concepts of probability.

 Check your answers at this book's Online Learning Center at [glencoe.com](http://glencoe.com).

# Vegetables

## Reading Guide

### Before You Read

**Take Guilt-Free Days of Rest** The reason for resting is to refresh oneself. However, if you feel guilty about resting (“I really should be reading”), then your precious rest period will only create more stress. The brain has a hard time absorbing new data when it is stressed. Your reading skills will be much more effective if you are relaxed and ready to learn.

### Read To Learn

#### Key Concepts

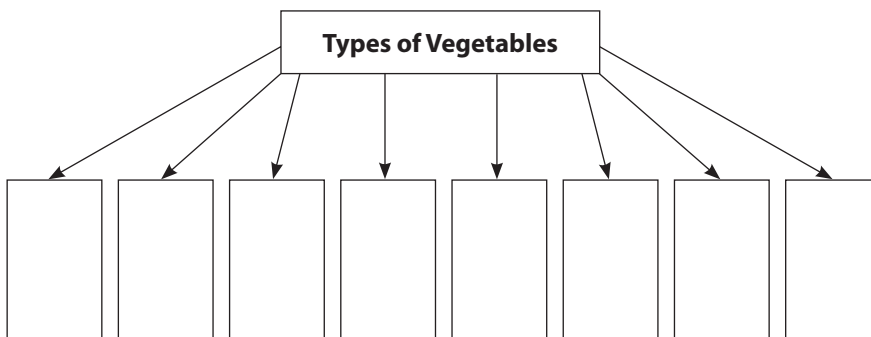
- **Identify** the purchasing and storage for fresh, canned, frozen, and dried vegetables.
- **Describe** dry and moist cooking methods for vegetables.


#### Main Idea

Vegetables are edible plants that grow in a variety of colors, flavors, and textures. Vegetables add variety and nutrition to a main course.

### Graphic Organizer

Commercial kitchens usually classify vegetables into eight categories. Use this tree diagram to name them.



 **Graphic Organizer** Go to this book's Online Learning Center at [glencoe.com](http://glencoe.com) for a printable graphic organizer.

*How many different ways can you use vegetables?*

### ACADEMIC STANDARDS

#### English Language Arts

**NCTE 8** Use information resources to gather information and create and communicate knowledge.

#### Mathematics

**NCTM Algebra** Understand patterns, relations, and functions.

#### Social Studies

**NCSS II D Time, Continuity, and Change** Employ processes of critical historical inquiry to validate and weigh evidence for claims.

**NCSS VIII B Science, Technology, and Society** Make judgments about how science and technology have transformed the physical world and human society.

**NCTE** National Council of Teachers of English

**NCTM** National Council of Teachers of Mathematics

**NSES** National Science Education Standards

**NCSS** National Council for the Social Studies

# Vegetable Basics

Like fruits, vegetables are versatile foods that add color, flavor, and texture to any meal. Many commercial kitchens offer vegetable-based entrées to meet the demands of health-conscious customers. Becoming familiar with the types and flavors of vegetables and the best ways to prepare and store them is important for every foodservice employee.

Vegetables are edible plants. Different parts of vegetables are eaten, including the flowers, seeds, stems, leaves, roots, and tubers. A **tuber** is the short, fleshy underground stems of plants. The potato is an example of a tuber. Certain types of fruit are classified as vegetables by commercial kitchens because they are savory rather than sweet. These fruits, such as eggplants and tomatoes, are prepared and served like vegetables.

## Vegetable Classifications

Commercial kitchens usually classify vegetables into the following categories: the squash family; roots and tubers; seeds and pods; the cabbage family; stems, stalks, and shoots; the onion family; fruit-vegetables; and leafy greens. These categories group vegetables by how they are used in the kitchen. For example, kale and cauliflower are members of the cabbage family, but from a culinary perspective they are used quite differently. Kale is a leafy green and cauliflower is a vegetable floret ('flôr-ət). A **floret** is a small flower that makes up the head of some plants.

## Purchase and Store Fresh Vegetables

The quality of the ingredients you use to prepare dishes directly affects the outcome of the finished product. Vegetables are no different. You must understand how to select fresh, high-quality vegetables and store them to maintain this quality. This will help ensure fresh, flavorful dishes.

## Grading

The USDA provides a voluntary grading system for vegetables that is used by almost all wholesalers. Grades are based on the appearance, quality, and condition of vegetables when they arrive on the market. Vegetables are graded as:

- U.S. Extra Fancy
- U.S. Fancy
- U.S. Extra No. 1
- U.S. No. 1

Premium quality is classified as U.S. Extra Fancy. When you choose vegetables to use in a foodservice operation, look for the highest-quality product. Some recipes, however, allow a lesser-quality product to be used.

Some vegetables are graded differently for the retail market. Onions, potatoes, and carrots are graded by an alphabetical system, with Grade A being the best.

## Ripening

Although many vegetables are fully ripe when purchased, they continue to ripen when exposed to oxygen in the air. The ripening rate depends on the type of vegetable and the way it is stored.

There are some vegetables you will want to continue to ripen. For example, tomatoes and other fruit-vegetables may be purchased unripe so they are damaged less in shipping. As with fruits, you can **hasten**, or speed up, ripening by exposing these fruit-vegetables to ethylene gas.

## Storage

Different vegetables require different storage conditions. Starchy vegetables, such as potatoes, winter squash, and vegetables in the onion family, are best stored at 60°F to 70°F (16°C to 21°C) in a dry location. If they are stored in a refrigerator, they will lose flavor and texture. Most other vegetables should be stored at refrigerator temperatures of 41°F (5°C) or below. Store vegetables away from fruits that emit ethylene gas, such as bananas. The gas will cause the vegetables to continue to ripen, and possibly spoil.

# Vegetables

**Squash Family** Members of the squash family have large root systems and trailing vines. Their flowers are often edible in addition to the main vegetable. Quality squash are firm, free of blemishes, and show no signs of mold.



**Roots and Tubers** Roots grow deep into the soil, while tubers are large, round, underground stems that grow just below the surface of the soil. Both store and provide food to their plants, making them rich in nutrients. Quality roots and tubers are firm, unwrinkled, unblemished, and have good color.

**Seeds and Pods** This category consists of vegetables with edible seeds. Some of the pods are also edible, but the seeds are more nutritious. Quality seeds and pods are firm, well shaped, and without blemishes.



**Cabbage Family** Vegetables in the cabbage family grow quickly in cool weather. Commercial kitchens use the flowers, leaves, and heads of these plants. They are served raw as well as cooked. Quality cauliflower, broccoli, and cabbage are firm, heavy for their size, and have good color.

**Stems, Stalks and Shoots** Vegetables in this category produce edible stems, stalks, and shoots. They are picked when they are young and tender. Quality stems, stalks, and shoots are firm, unblemished, and have no browning.



**Onion Family** Vegetables in the onion family are often used for seasoning and flavoring. Most have a strong taste and odor. Quality onions are firm, fresh-looking, and have good color.

**Fruit-Vegetables** Vegetables that are often called fruit-vegetables come from flowering plants and contain at least one seed. Therefore, they are technically the fruit of the plant. For the purpose of commercial kitchens, however, they are categorized as vegetables because they are savory rather than sweet. Quality fruit-vegetables have smooth, unblemished skin.



**Leafy Greens** Vegetables in this category can be served raw or cooked. They shrink when cooked because of their high water content. Flavors of leafy greens range from mild to spicy. Quality greens have crisp, bright leaves without any brown spots.

## Purchase and Store Potatoes

Potatoes are a versatile vegetable. Foodservice operations use potatoes in some form at each meal. Most foodservice operations purchase potatoes in 50-pound cartons or bags. The number of potatoes in each carton varies depending on the size of the potatoes.

Store potatoes in a dry, dark area with temperatures of 45°F to 55°F (7°C to 10°C). Do not refrigerate potatoes. The cool temperature will convert some of the potato starch to sugar. This will make the potato too sweet. Do not eat green potatoes. Green potatoes contain a toxic substance known as solanine. **Solanine** can upset your stomach and interfere with nerve transmission.

## Types of Potatoes

Potatoes are divided into two main types: mealy and waxy. A **mealy potato** has thick skin and starchy flesh. Mealy potatoes are best for deep-frying, baking, whipping, and puréeing. A **waxy potato** has thin skin and contains less starch than mealy potatoes. They are best for boiling.

There are a wide variety of mealy and waxy potatoes:

**Russet** A mealy potato also known as Idaho. Russets are a popular choice for baking and frying.

**Red** A waxy, pink- to red-skinned potato. Red potatoes are good roasted and in salads, soups, and casseroles.

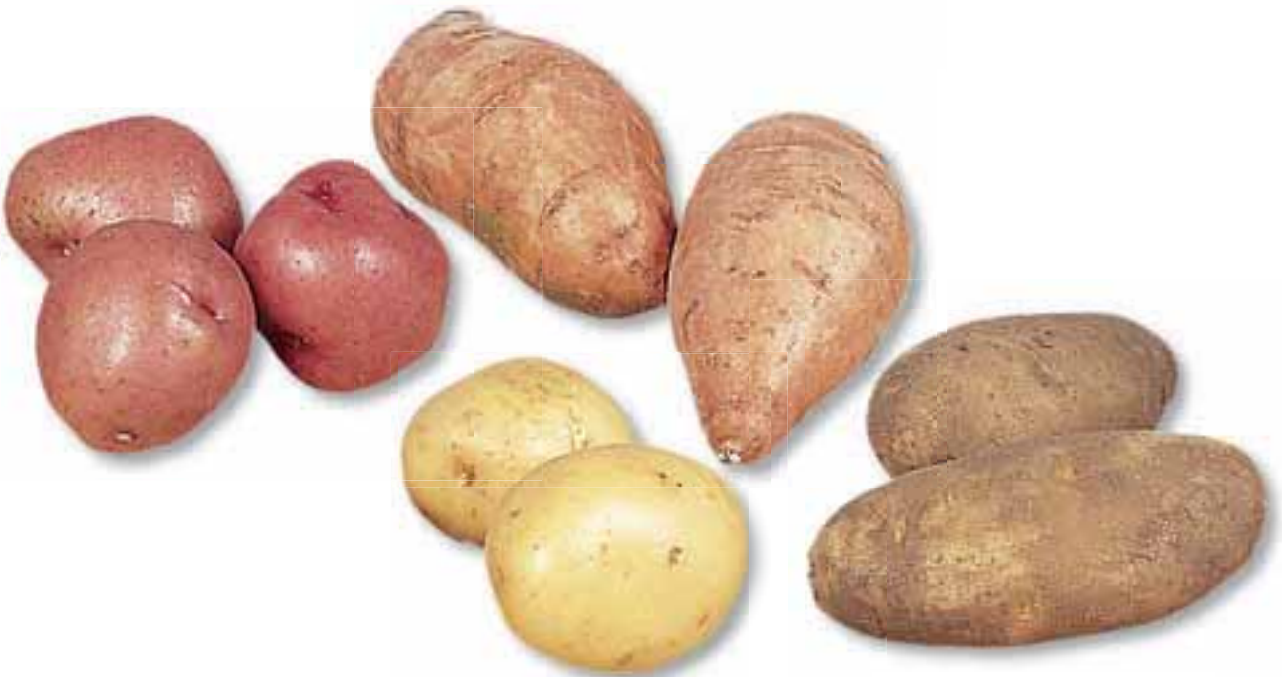
**Yukon** A buttery-flavored mealy potato with golden flesh. Yukon potatoes can be baked, puréed, and made into salads and casseroles.

**Sweet** This type comes in two varieties: white and red. White sweet potatoes have yellow flesh and a mealy texture. Red sweet potatoes have a darker orange flesh and a less mealy texture. Both types are used in soups and casseroles, and can be boiled, roasted, and puréed.

## Quality Characteristics

Use the following characteristics when you select potatoes:

- All varieties of potatoes should be heavy and firm, without soft spots, green color, or sprouting eyes.
- Sweet potatoes should have dry-looking, orange and golden-orange skins.



**Types of Potatoes** Potatoes are a versatile vegetable that comes in mealy and waxy varieties. *How might potatoes be used at every meal at a restaurant?*

- Avoid sweet potatoes with softened ends. This will **mark**, or show, the beginning of spoilage.
- Other potatoes should have dry, tight skins, without wrinkles.

## Market Forms of Potatoes

Many market forms of potatoes can be used in the professional kitchen.

**Fresh** Fresh potatoes are readily available year-round. They can be baked, fried, boiled, whipped, or puréed and served with sour cream, nonfat yogurt, or butter.

**Canned** Most types of potatoes are available in cans, already cooked, whole or sliced. Use of canned potatoes eliminates the risk of spoilage and can result in a high-quality dish. Keep in mind, however, that most canned sweet potatoes are packed in a sugary or spicy sauce.

## Safety Check

### ✓ Green Potatoes

Discard potatoes with green skin or green spots on the skin. These potatoes contain solanine. Solanine is caused by prolonged exposure to light. Solanine is not destroyed by heat and does not dissolve in water. This toxin can cause gastrointestinal (,gas-trō-in-'tes-tə-nəl) problems and central nervous system problems.

**CRITICAL THINKING** *How can you avoid the formation of solanine in your potatoes?*

**Frozen** Many foodservice operations purchase frozen potatoes that are precut for French fries. The French fries are blanched in deep-frying fat and then frozen. This product enables foodservice operations to quickly prepare French fries, without cleaning, peeling, and slicing fresh potatoes. Prepared potato dishes available frozen include hash browns and stuffed baked potatoes.

**Dehydrated** Dried potato flakes, dices, slices, and shreds can be mixed with milk or hot water to make mashed potatoes, hash browns, scalloped potatoes, and other popular dishes. Some dehydrated potatoes may need soaking before cooking.

## A TASTE OF HISTORY

1772

Paris Faculty of Medicine declares potatoes to be edible

1775

Paul Revere warns the American colonists of the British troops' arrival

### Potato Promoter

Many Europeans, especially the Irish, considered the potato an ideal staple food. The French were slow to accept it, however. Many believed that the potato, a part of the nightshade family, was poisonous. A pharmacist named Antoine Parmentier saw the potato's merits and sought ways to change their minds. Parmentier believed potatoes could help ward off the starvation caused by famines that were plaguing France, and so he became a potato promoter. As a result of Parmentier's efforts, the potato became an important part of French cuisine.

### History Application

Parmentier worked hard to convince the people of France about the benefits of the potato. Write a dialog between two people, where one is trying to convince the other about the health benefits of the potato.

**NCSS II D Time, Continuity, and Change** Employ processes of critical historical inquiry to validate and weigh evidence for claims.

## Purchase and Store Preserved Vegetables

Techniques like canning, freezing, and drying are used to lengthen the shelf life of vegetables. Cooked vegetables can also be preserved through canning and freezing. These techniques may affect the flavor and texture of vegetables.

### Canned Vegetables

Almost every variety of vegetable is available canned, which brings many advantages to the commercial kitchen. Canned vegetables are already cleaned, peeled, cut into pieces, and cooked. Combinations of vegetables combined with seasonings and flavorings are also available canned. Additionally, they have been heat-treated to kill microorganisms.



Canning effectively preserves the flavor and texture of vegetables such as beets, sweet potatoes, peas, corn, and beans. However, the heat used during canning softens most vegetables and can cause some nutrient loss. Use the liquid from the canned vegetables to retain some of these nutrients. Canning can also dull the color of green vegetables.

The USDA grading system for canned vegetables is:

- U.S. Grade A or Fancy
- U.S. Grade B or Extra-Select
- U.S. Grade C or Standard

The **net weight** of canned vegetables is the weight of the contents. The **drained weight** is the weight of the food product without the packing medium. A **packing medium** is a liquid used to protect the food product. It can be thin or thick. Canned vegetables come in a variety of commercial sizes. (See **Figure 25.1**.)

## Frozen Vegetables

Frozen vegetables offer convenience similar to that found with canned vegetables, but the quality is higher. Most nutrients are retained during freezing. Vegetables also keep their bright colors and flavors because of the quickness with which they are precooked and frozen. As with fruits, some vegetables are individually quick frozen. This improves their texture and appearance.

Some frozen vegetables are frozen raw. Others are completely cooked and need only to be thawed and heated before serving. Some frozen vegetables are frozen with a sauce. Do not refreeze unused portions. Instead, store them in the refrigerator as you would fresh vegetables.

The same grading system used for canned vegetables is used for frozen vegetables. The most common pack for frozen vegetables is a 20-pound bulk bag in a cardboard case. Other packs include six 4-pound bags and 12 2.5-pound bags or boxes. Keep all packages in a freezer at a steady temperature of 0°F (-18°C) or below.

## Dried Vegetables

Dried vegetables are not as common in foodservice operations as canned and frozen vegetables. The drying process affects the appearance, taste, and texture of vegetables. The advantage to using dehydrated vegetables is convenience. Essentially, everything is done in the processing plant instead of the commercial kitchen.



**Reading Check Explain** What are the advantages of using frozen vegetables in a foodservice operation?

**FIGURE 25.1 Canned Vegetable Sizes**

**Use Canned Vegetables** Almost every variety of vegetable can be found in canned form. *When might you choose to use canned vegetables rather than fresh vegetables?*

Can Size	Weight	Cans per Case
No. 2	20 oz.	24
No. 2½	28 oz.	24
No. 300	14–15 oz.	36
No. 303	16–17 oz.	36
No. 5	46–51 oz.	12
No. 10	6 lb., 10 oz.	6

## Cooking Vegetables

Unlike fruits, most vegetables are served cooked. Cooking softens vegetables and intensifies their flavor. It also makes them easier to chew and digest. To maintain flavor and quality, cook vegetables in batches as close to serving time as possible. Improper cooking and holding techniques can cause vegetables to lose nutrients and can damage their texture, color, and flavor. For example, to help white and red vegetables retain their color, cook them in liquid that is slightly acidic. Learn how to apply the right cooking techniques so that you can serve tender vegetables packed with nutrition and flavor.

## Pre-Preparation for Vegetables

Efficiently preparing and arranging vegetables is an important step in cooking vegetables. The number and types of vegetables you will need to prepare vary with each recipe.

### Washing

Because vegetables grow outside and often close to the ground, they can pick up sand, dirt, grit, chemicals, and even insects. It is critical to clean them thoroughly just before preparation. Because water can leach nutrients from vegetables, clean the produce quickly under cold running water. Follow these other guidelines:

- Scrub root vegetables with a strong-bristled brush.
- Soak cabbage family vegetables, in salted water for a short amount of time. This will draw out any insects.
- Store cut vegetables, such as carrots, in the refrigerator until ready to be used.

Unlike other vegetables, leafy green vegetables are washed in a water bath. This allows debris and sand to settle to the bottom of the vegetable sink. To avoid further contact with debris, lift the greens out of the water.

### Peeling, Cutting, and Shaping

The way you peel, cut, and shape vegetables will influence how they will cook and how they will look when they are served. Depending on how each vegetable will be used, its preparation will differ.

Always trim off and discard only inedible skins, leaves, stems, and stalks. You could use a vegetable peeler to remove a thin layer of vegetable skin. Cut vegetables into uniform pieces to ensure even cooking. Many foodservice operations use food processors to uniformly cut vegetables. Another hand-operated machine, called a **mandoline** (*man-də-'lin*), is used for slicing vegetables and fruits, such as potatoes and apples. In using a mandoline, food is held in a metal carriage while slicing to protect the fingers. See **Figure 25.2** on page 654 for popular cuts and shapes that are used on vegetables and potatoes.

## Cook Vegetables with Dry Heat

Cooking vegetables with dry heat preserves flavors and nutrients. Because vegetables are not submerged in water, there is no risk of nutrients leaching into liquid. Dry cooking techniques such as grilling can also give vegetables interesting flavors.

You can brush butter, seasonings, flavorings, or flavored oils on vegetables before cooking them for added flavor. Never use flavored oils for deep-frying. Evenly slice vegetables to ensure uniform cooking and add to the visual appeal of the final product.

### Broiling and Grilling

Broiling and grilling both cook vegetables quickly with relatively high heat. The heat caramelizes the vegetables. This gives them a pleasing flavor. Many kinds of vegetables can be grilled or broiled, including potatoes, tomatoes, peppers, squash, eggplant, zucchini, and corn.

You can thread small sliced vegetables, such as mushrooms and tomatoes, onto wooden or metal skewers for grilling. Be sure to cut larger vegetables, such as eggplant and squash, into slices and place them directly on the grill. For broiling, arrange slices or chunks of vegetables on a sheet pan. Broiling can also be used to reheat a vegetable that has already been cooked. You can marinate vegetables before you broil or grill them for extra flavor.

## Safety Check

















### ✓ Canned Vegetables

The high heat used during the canning process kills microorganisms. However, occasionally cans are not properly sealed, processed, or handled. Throw away any swollen or dented cans and cans that contain discolored food. People can become seriously ill if they eat food from these cans.

**CRITICAL THINKING** *Why would a swollen or dented can signal the possible presence of microorganisms?*

**FIGURE 25.2 Popular Vegetable Cuts**

**Vegetable Shapes** The shape of the vegetable cut will influence how vegetables cook and how they will look when served. *How are vegetables cut into a brunoise most commonly used?*

Vegetable Cuts			
	<b>French Fry</b> 1/2 x 1/2 x 3 inches		<b>Brunoise</b> 1/8 x 1/8 x 1/8 inch (small dice)
	<b>Stick</b> 3/8 x 3/8 x 2 inches		<b>Mirepoix</b> 1/2 inch average rough cut
	<b>Baton</b> 1/4 x 1/4 x 3 inches (small stick)		<b>Chips</b> 1/8 inch thick slice
	<b>Julienne</b> 1/8 x 1/8 x 2 inches (short, matchstick)		<b>Waffle</b> 1/8 inch thick slice; perforated
	<b>Fine Matchstick</b> 1/16 x 1/16 x 2 inches		<b>Tournée</b> 7-sided; 2 inch-long barrel
	<b>Large Dice</b> 3/4 x 3/4 x 3/4 inch		<b>Round</b> Round disks of varying thickness
	<b>Medium Dice</b> 1/2 x 1/2 x 1/2 inch		<b>Diagonal</b> Bias-cut slices of variable thickness
	<b>Small Dice</b> 1/4 x 1/4 x 1/4 inch		<b>Chiffonade</b> Thin ribbons

## Baking

Baked vegetables are cooked at a lower temperature for a longer period of time than grilled or broiled vegetables. Squash, onions, potatoes, and other root vegetables are excellent baked. They should be well cleaned, peeled, and, unless they are baked whole, cut into uniform pieces. Baked vegetable casseroles are a good option for vegetarian customers or those wanting a healthful meal option.

## Sautéing

Sautéing cooks vegetables in a small amount of butter or oil in a hot sauté pan. Sautéing happens quickly because the heat is high. This means that all vegetables must be cut and ready to cook before you begin.

Many different kinds of vegetables can be sautéed, including mushrooms, summer squash, and onions. Firm vegetables such as broccoli, brussels sprouts, carrots, beans, celery, and potatoes need to be blanched before sautéing. Otherwise, they will not get soft enough. Sautéed vegetables should look brightly colored and still be slightly crisp.

## Deep-Frying

Deep-fried vegetables are usually coated in batter, and then submerged in hot oil. Potatoes are popular deep-fried as French fries or potato chips. Other vegetables that can be deep-fried include onions, mushrooms, cauliflower, okra, and eggplant. Be sure to cut vegetables into even pieces. Wipe off any excess moisture before deep-frying.

## Cook Vegetables with Moist Heat

Moist cooking methods used in vegetable cookery include blanching, parboiling, steaming, simmering, poaching, and braising. Before you cook with these techniques, clean vegetables thoroughly and cut them into uniform pieces. Clean all surfaces and utensils that touch fresh vegetables with hot water

and soap before and after preparation. Add bouillon, herbs, spices, or butter to the cooking liquid for extra flavor. To retain nutrients, cook vegetables for the minimum amount of time needed and in a small amount of liquid. If possible, you can reuse this flavored liquid in the dish you are preparing, or in soups or stocks.

Green vegetables need to be cooked without a cover to let the acid escape. Red vegetables need to be cooked covered to keep the acid inside. They also may need to have an acid such as vinegar added to the water to replace lost acid.

## Blanching

Often used to loosen the skins of vegetables, blanching involves plunging foods briefly into boiling water and then plunging them into cold water to stop the cooking process. Blanching is also used to increase the color and flavor of vegetables before freezing them. Sometimes, blanching is a first step for a second cooking process such as sautéing. It can also make it easy to remove skins from tomatoes.

## Parboiling

Parboiling is used to partially cook vegetables. Another method is then used to finish cooking the vegetables, such as grilling or sautéing. Parboiling is also used to remove strong flavors and loosen skins or peels. Winter squash, root vegetables such as potatoes, and members of the cabbage family such as kale are commonly parboiled.

## Steaming and Simmering

Steamed vegetables are cooked by being placed above boiling water in a perforated container. Today, most commercial kitchens use combination or pressureless steamers. Simmered vegetables sit in a shallow layer of lightly boiling water. Use just enough water to cover the bottom of the pan, and cover with a lid. The end result of both techniques is the same: soft, colorful, flavorful vegetables.

# Sweet and Spicy Broccoli

YIELD: 6 SERVINGS  
SERVING SIZE: 10 OUNCES

## Ingredients

- 2 Broccoli, blanched heads slightly and shocked
- 1 c. White raisins
- 1 tsp. Garlic, minced
- ½ c. Olive oil
- 2 tbsp. Fresh ginger, very finely chopped
- ¼ c. Vinegar
- 2 tbsp. low-sodium soy sauce
- 1 tsp. Crushed red pepper flakes
- 2 tbsp. Mayonnaise
- 1 tsp. Dijon mustard
- 1 tsp. Honey
- ½ c. Water

## Method of Preparation

1. Cut the florets from the heads of broccoli and save 2 of the stems.
2. In a food processor, combine ¾ cup of the broccoli florets, the 2 stems, and all of the other ingredients. Process until smooth. If it is too pasty, add more water.
3. When consistency is smooth, pour contents of food processor over the remaining florets and stir mixture until the sauce is evenly distributed. It is ready to serve immediately.

### Chef Notes

Broccoli has a stronger odor the older it is. Use fresh broccoli for the best flavor.

### Substitutions

- Use low-fat or nonfat mayonnaise, or a soy substitute, to lower fat.

## Cooking Technique

### Blanching

1. Bring water to a boil.
2. Place food in the water, and boil for a short time.
3. Remove food from water, and place it in cold water or an ice bath to stop the cooking process.

## International Flavor

Broccoli can be added to many different types of dishes. Research how broccoli is used in these dishes, and suggest ways to add broccoli to two more dishes. Write your answer in a half-page report.

- Gado-gado (Indonesia)
- Beef with Broccoli (China)

## Glossary

**Shock** to bathe cooked food in cold water or ice.

**Floret** a flowering part of a vegetable or plant.

## HACCP

- Hold at 135°F (57°C) or above
- Store at 41°F (5°C)

## Hazardous Foods

- Mayonnaise

## Nutrition

**Calories** 360    **Calories from Fat** 210  
**Total Fat** 23g  
     Saturated Fat 3g  
     Trans Fat 0g  
**Cholesterol** 0g  
**Sodium** 290g  
**Total Carbohydrates** 35g  
     Fibers 6g  
     Sugars 19g  
**Protein** 7g  
 • Vitamin A 30% • Vitamin C 300%  
 • Calcium 10% • Iron 10%

## Poaching and Braising

Poached vegetables cook in just enough simmering liquid to cover the food. Braising vegetables is done by simmering them in a seasoned liquid or sauce in the oven. Save this liquid and serve it with the vegetables for added flavor. Popular vegetables used for braising are cabbages, celery, leeks, onions, endive, Swiss chard, and fennel. See Chapter 15 for more information on poaching and braising.

## Determine Doneness

Every vegetable has slightly different characteristics when it is properly cooked, so there is no one rule to follow for cooking time. However, most vegetables are done cooking when they are just tender enough to cut with a fork. Leafy vegetables should become brighter in color than when they are raw, and should be slightly wilted. Instead of relying on a specific cooking time, pay attention to how vegetables look, taste, smell, and feel.



### ◀ Moist Cooking

Vegetables can be cooked by blanching, parboiling, steaming, simmering, poaching, and braising methods.

*How do you retain the nutrients in moist-cooked vegetables?*

## Plate and Garnish Vegetables

As with any other food, an important factor in cooking vegetables is its visual appeal on the plate. Uniform-size pieces arranged in an attractive pattern make the entire plate look appealing. Plate vegetables using the following arrangements:

- Place the main entrée to the front of the plate, with the vegetables to the back.
- Place the main item in the center of the plate with vegetables placed randomly around the item. Vegetables could be arranged in a pattern instead.
- Place vegetables in the center of the plate with the main item leaning against it. The main item also could be sliced and placed around the vegetables.

- Put a **bouquetière** ( $\text{,b}\bar{\text{o}}\bar{\text{o}}\text{-k}\bar{\text{a}}\text{'tyir}$ ), or bouquet of three or more vegetables, arranged on a plate surrounded by other foods.

You can use a lot of creativity when you plate vegetables. Simple garnishes, such as chopped scallions or minced lemon zest, add visual appeal, texture, and flavor. For example, to zest a lemon, you would pull the zester over the lemon to cut thin strips of the lemon zest.



### Reading Check

**Summarize** How would you grill vegetables?

## SECTION 25.2



### After You Read

#### Review Key Concepts

1. **Identify** the market forms of potatoes.
2. **Describe** the pre-preparation process for vegetables.

#### Practice Culinary Academics



#### English Language Arts

3. Choose one vegetable that grows in your region. Research its nutritional value, when it is in season, and how to prepare and store it. Describe the flavor and texture and create one main course or side dish using the vegetable. Write a one-page report with an illustration or photograph.

**NCTE 8** Use information resources to gather information and create and communicate knowledge.



#### Social Studies

4. Visit a local farmer's market or produce department. Speak with a farmer or produce manager about how they grow and store their vegetables. Ask them about any technology that helps them grow vegetables more easily, or improves their quality. Report back to the class about what you learned.

**NCSS VIII B Science, Technology, and Society** Make judgments about how science and technology have transformed the physical world and human society.



#### Mathematics

5. A local organic farm sells your restaurant asparagus at \$2 per pound, plus a flat \$5 fee for delivery. Write an algebraic equation that shows the relationship between the total order price and the number of pounds ordered. Then, graph this equation.

#### Math Concept Graphing Algebraic Equations

If an equation has two variables ( $x$  and  $y$ ), rearrange the equation so that  $y$  is by itself on one side. Choose any five values for  $x$ , and calculate the corresponding values for  $y$ . Plot each of the five pairs on a graph, and connect them with a line.

**Starting Hint** Let  $y$  represent total order cost, and  $x$  stand for the number of pounds ordered. Write an equation beginning " $y =$ ". Remember that  $x$  is the horizontal measurement on the graph, and  $y$  the vertical.

**NCTM Algebra** Understand patterns, relations, and functions.



Check your answers at this book's Online Learning Center at [glencoe.com](http://glencoe.com).

# Legumes

## Reading Guide

### Before You Read

**Preview** Choose a Content or Academic Vocabulary word that is new to you. When you find it in the text, write down the definition.

### Read to Learn

#### Key Concepts

- **List** the various types and quality characteristics of legumes.
- **Describe** the process of preparing and cooking legumes.


#### Main Idea

Legumes are a group of plants that have pods that contain seeds. Legumes are nutritious, have a long shelf life, and are a healthful, flavorful addition to a meal.

#### Graphic Organizer

As you read, use a table like this one to list the three methods for cooling legumes quickly.

**Legume Cooling Methods**


 **Graphic Organizer** Go to this book's Online Learning Center at [glencoe.com](http://glencoe.com) for a printable graphic organizer.

*Legumes can make a hearty meal or a seasoned side dish.*

### ACADEMIC STANDARDS



#### English Language Arts

**NCTE 6** Apply knowledge of language structure and conventions to discuss texts.



#### Mathematics

**NCTM Problem Solving** Apply and adapt a variety of appropriate strategies to solve problems.



#### Science

**NSES C** Develop an understanding of the interdependence of organisms.



#### Social Studies

**NCSS VII A Production, Distribution, and Consumption** Examine how the scarcity of productive resources requires the development of economic systems to make decisions about how goods and services are to be produced and distributed.

**NCTE** National Council of Teachers of English

**NCTM** National Council of Teachers of Mathematics

**NSES** National Science Education Standards

**NCSS** National Council for the Social Studies



# Types of Legumes

Legumes are considered vegetables, but are treated as a separate topic. A **legume** (<sup>l</sup>le-,gyüm) is a plant that has double-seamed pods that contain a single row of seeds. Examples include peas, beans, lentils (<sup>l</sup>en-təls), soybeans, and peanuts. Cultures around the world have used legumes as a staple food for thousands of years. Legumes are nutritious, have a long shelf life, and contribute flavor and texture to any meal. Customers demand healthful foods with flavor. Commercial kitchens are making legumes an important part of their menus.

Legumes are not picked as fresh beans and peas. They are left on the vine until the bean or pea is plump and beginning to dry. At this point, the pods are harvested from the vine and the legumes are removed. When a seed of a legume is dried, it is called a **pulse**. Lentils and dried peas are examples of pulses.

Legumes come in different shapes, sizes, and colors. There are dozens of different types of legumes, each with a different texture and flavor.

Legumes can be used in a variety of dishes and in many different ways. They are often added to soups and salads, and substituted for meat. Many vegetarian dishes feature legumes as a protein source. For example, when making tacos, you could use legumes instead of ground beef as the main ingredient. Legumes can also be made into dips and spreads. They can be eaten as a snack item, or served as the main entrée.

## Quality Characteristics

When you select legumes, consider the following quality standards. Legumes should be brightly colored and uniformly sized. They should not be marked, shriveled, damaged, or broken. Legumes are graded as:

- U.S. No. 1: The highest quality
- U.S. No. 2: Above average quality
- U.S. No. 3: Medium quality

## ✧ Nutrition Notes ✧

### Nutrients in Legumes

Legumes contain little fat and no cholesterol. Legumes are an excellent source of complex carbohydrates, protein, and soluble fiber. They provide iron, potassium, folate and other B vitamins, calcium, and zinc. Legumes are an essential protein source for people who follow a vegetarian diet.

**CRITICAL THINKING** *Who else besides vegetarians might benefit from adding legumes to their diet?*

## Purchasing and Storage

When you purchase legumes, look for uniformly sized pieces, which ensure even cooking. The legumes should have smooth skin and should not look **withered**, or shrunken and wrinkled. Withering is a sign that the legumes are old. Legumes continue to dry as they age, so purchase enough to last only one month. Older legumes require more cooking liquid and a longer cooking time.

Legumes can also be purchased in canned form. Although the canning process does destroy nutrients, some nutrients can be recovered by using the canning liquid.

**Preprocessed legumes** are also available. These legumes have already been soaked, which means they will take less time to cook.

As with other dry goods, legumes should be stored in a cool, dark, dry place with good ventilation. Keep opened packages of legumes in air-tight, moisture-proof containers. Do not store bags of legumes on the floor. Pests may infest them. You should never store dry legumes in the refrigerator or in a humid area. They will begin to absorb moisture immediately and spoil. Legumes need to be protected from heat and light. Vitamin B<sub>6</sub> is found in beans, and it is sensitive to light.



**Reading Check List** What are the quality characteristics of legumes?

# Common Legumes

**Baby Lima Beans** Lima beans are a flat-shaped bean. They are pale, light green in color, and have a smooth texture and a sweet flavor.



**Black-Eyed Peas** This is a medium-size, oval-shaped pea. Black-eyed peas are dark beige in color, with a black dot on the skin. They have a smooth texture and a savory flavor.

**Cannellini (,ka-nə-'lĕ-nĕ) Beans** Cannellini beans are larger than American white beans. They have a creamy white color, a mild flavor, and a smooth texture.



**Fava (,fä-və) Beans** The fava is a large, flat, kidney-shaped bean. It is brown or white in color. Fava beans have a fine texture and are slightly firm.

**Garbanzo (gär-'bän-(,)zō) Beans** Garbanzo beans are medium-size and round. They are also called chick peas. Garbanzo beans are a beige color, and have a firm texture and a nutty flavor.



**Great Northern Beans** This is a medium-size, oval-shaped bean. It is creamy white color. Great Northern beans have a powdery texture and a mild flavor.

**Green and Brown Lentils** These lentils are disk-shaped, pea-size beans. They are green and brown in color.



# Common Legumes *continued*



**Navy Beans** Navy beans are small and oval in shape. They are white in color, have a powdery texture, and a mild flavor.

**Peanuts** Peanuts are oblong kernels. They are light brown in color, and have a firm texture.



**Pinto Beans** Pinto beans are medium-size, oval-shaped beans. They are beige and brown in color, and are typically mottled. They have a powdery texture and an earthy flavor.

**Black Beans** Black beans are medium-size and oval-shaped. They are also called turtle beans. Black beans have a creamy interior flesh with a black shell or skin, and a sweet flavor.



**Red Kidney Beans** As the name suggests, these are kidney-shaped beans. They are reddish-brown in color, and they have a soft texture and a robust flavor.

**Soybeans** Soybeans are a round bean. They are green, black, or yellow in color and have a bland flavor.



**Yellow and Green Split Peas** These whole peas have had the skin removed and are split in half. They are yellow and green in color. They have a soft, floury texture with a sweet taste.

# Cooking Legumes

All legumes must be cooked to be digestible. **Digestible** means that the nutrients, such as protein, are more **accessible**, or available, to the body. Red kidney beans contain a natural toxin that is destroyed during cooking. The flavor of legumes varies with the product. Some are very flavorful by themselves. Others are quite bland and require seasoning. Great Northern beans and Navy beans are legumes that require seasoning. Soybeans can also be bland without seasoning.

Cooking legumes involves rehydration, the process of adding water back into the legume. Since the beans have been thoroughly dried, they need to become filled with water again. This usually is accomplished in two steps: soaking and simmering.

## Check and Soak Legumes

Before you cook legumes, you must get everything ready for preparation. Dishes that use legumes must be carefully planned out to leave enough time for sorting, soaking, and cooking the legumes. Carefully sort through legumes before cooking. Remove any shriveled or discolored legumes. Also, check for objects such as pebbles or stems that might have slipped into the package. Items such as these can be a physical hazard to customers.

Next, rinse legumes in cold water repeatedly until the water is clear. Most legumes require soaking, but check the package to be sure. In general, the longer legumes soak, the less time they will take to cook. Remove any legumes that float. Insects may have eaten the insides of those legumes. The most efficient way to soak legumes is to leave them overnight in three times their volume of water in the refrigerator. An alternative method is to **quick soak** them. Put the beans in a pot and cover with water. Bring the water to a boil and cook for a few minutes. Turn off the heat, cover the beans, and let them sit for one hour. Discard the water.

## Science à la Carte

### Moisture and Mold in Legumes

The USDA has procedures for detecting toxic, or mold-infected, legumes before the food is sold. Two types of fungi that cause the most concern are the aspergillus (*as-pər-ˈji-ləs*) and fusarium (*fyū-ˈzer-ē-əm*) species of molds. Under certain conditions, each type of mold can produce a toxic substance called aflatoxin (*a-flə-ˈtāk-sən*). Once the food is infected, the aflatoxin cannot be destroyed. There is no safe way to eat legumes that have mold.

The easiest method to prevent mold growth in legumes is to keep them too dry for mold to grow. Aspergillus and fusarium molds require moisture to reproduce. A moisture content of 10% or less is desirable.

### Procedure

To estimate the moisture content in your legumes, try the following experiment.

- Remove some legumes from the middle of the container in which they are stored.
- Weigh out 20 ounces of legumes. Spread them in a large baking dish, not more than an inch deep.
- Preheat the oven to 180°F (82°C). Place the baking dish in the oven for two hours, stirring occasionally.
- After two hours, turn off the oven, but keep the dish in the oven until it has cooled.
- Reweigh the legumes.

### Analysis

Record the new total weight of the legumes. Then, assuming that every ounce less than the original 20 ounces indicates a five percent moisture content, decide whether your legumes are desirable to eat.

**NSES C** Develop an understanding of the interdependence of organisms.

All types of legumes are rich in iron, vitamins, protein, and starch. Legumes can also be made into substitute items. Soy milk, an emulsion made from ground soy beans and water, is used as a milk substitute. Legumes are sometimes ground into a flour and used as a substitute for wheat flour in baking recipes.

## Simmer Legumes

After you prepare the legumes, you will simmer them. Simmering legumes allows the hard, dry legumes to slowly reabsorb water.

After soaking legumes, follow these general guidelines to cook legumes:

1. Simmer the legumes and cooking liquid for 30 minutes to three hours.
2. When legumes are tender, but not too soft, they are ready to be used.
3. Test for doneness by tasting a few beans. If their texture is not soft enough, they are not ready and must be simmered for longer. Legumes that will go into a hot dish can be added to the dish after simmering. Legumes that will be added to a cold dish must be properly cooled before they are added to the cold dish.

## Cool Cooked Legumes

After legumes have been cooked, allow them to cool before using them. Keep the legumes in the cooking liquid while they cool. This will keep them moist. Use one of the following methods to cool legumes quickly:

- Divide the hot legumes into smaller quantities. Place them into pre-chilled shallow pans and refrigerate.
- Use an ice bath to bring down the temperature of the food. First, divide the food into small, shallow pans. Place the pans in ice water in a sink.
- Use cold paddles, such as Rapi-Kool®, that you fill with water and freeze. Stirring legumes with cold paddles will help cool them quickly. Sanitize the paddles every time you use them.



**Sort and Soak** Legumes should be sorted before use, and those below standards of quality should be discarded. *Why should legumes also be rinsed prior to soaking and use?*

## ✦ MASTER RECIPE

# Lentil Stuffed Zucchini

YIELD: 6 SERVINGS  
SERVING SIZE: 11 OUNCES

### Ingredients

1/3 c.	Brown lentils
1/2 c.	Water
1 large	Carrot, finely chopped
1 rib	Celery, finely chopped
1/2 c.	Onion, finely chopped
1/4 ea.	Green bell pepper, finely chopped
1/4 ea.	Red pepper, finely chopped
2 clv.	Garlic, minced
1 ea.	Bay leaf
6 med.	Zucchini
Dash, + 1/4 tsp.	Salt
2 dashes + 1/4 tsp.	Pepper
1/4 c.	Tomato paste
1/4 c.	Walnuts, finely chopped
2 tbsp.	Flat-leaf parsley, fresh, finely chopped
2 tsp.	Thyme, fresh, finely chopped
1 tsp.	Dill, snipped, fresh
1 tsp.	Tarragon, fresh, finely chopped
1/4 c.	Parmesan cheese
1/4 c.	Bread crumbs, dried

### Method of Preparation

1. Combine the lentils, water, carrot, celery, onion, bell pepper, red pepper, garlic, and bay leaf in a large saucepan. Cover and simmer over medium-high heat until the lentils are tender and the liquid is absorbed, about 30 minutes.
3. Meanwhile, preheat the oven to 350°F (177°C). Lightly oil a 10-inch by 8-inch baking dish. Bring a large pot of water to a boil over high heat, add the zucchini, and cook until just tender, about 15 minutes. Drain and cool slightly.
4. Trim the ends and slice each zucchini in half lengthwise. Use a spoon to scoop out about half of the inside of the zucchini and discard, leaving a 1/4-inch-thick shell. Arrange the zucchini shells in the prepared pan and sprinkle with salt and pepper.
5. When the lentils are cooked, remove the bay leaf. Stir in the remaining 1/4 tsp. salt and 1/4 tsp. pepper, tomato paste, walnuts, parsley, thyme, dill, and tarragon. Taste and adjust the seasoning.
6. Stir together the Parmesan, bread crumbs and a dash of pepper in a small bowl.
7. Spread about 2 Tbsp. of the lentil mixture into each zucchini half. Sprinkle with the Parmesan mixture.
8. Bake for 30 minutes, or until the zucchini are completely tender and the cheese is melted. Hold at 135°F (57°C) or above.

### Chef Notes

This vegetarian entrée offers a meaty texture from the lentils, and provides high quantities of fiber and protein.

### Cooking Technique

#### Baking

1. Preheat oven to desired temperature.
2. Place items to back on the correct rack in the oven.

### International Flavor

Vegetables are ideal for stuffing because they hold up well in the oven. Research these recipes, and make a chart of their similarities and differences.

- Dolmades (Greece)
- Basic Stuffed Zucchini (Italy)

### Glossary

**Jalapeno** a dark green chili pepper from Mexico

### HACCP

- Hold at 135°F (57°C) or above.

### Hazardous Foods

- none

### Nutrition

Calories	160	Calories from Fat	45
Total Fat	5g	Saturated Fat	1g
		Trans Fat	0g
Cholesterol	5mg	Sodium	300mg
Total Carbohydrate	24g	Fiber	6g
		Sugars	8g
Protein	92g	Vitamin A	60%
		Vitamin C	90%
		Calcium	10%
		Iron	20%

## Small Bites

**Legumes for Livestock** Forage legumes are types of legumes that are often used to feed livestock. Alfalfa and clover are both types of forage legumes.

### Cooked Legume Storage

Often, more legumes are prepared than will be used. In this case, cooked legumes can be labeled, dated, and stored in the refrigerator. Use them within three days. Legumes that will not be used within the three-day period can be frozen. Package the cooked legumes in an air-tight, moisture-proof container.

To keep them moist, add just enough cooking liquid to cover them. Label the container with the date and contents. Frozen legumes can be stored for six months.

### Plate and Serve Legumes

Legumes can be used in salads, soups, stews, or casseroles. They also can be served alone or with rice. Legumes can also be used as a meat substitute in dishes such as lasagna or chili. For a change of pace, use legumes in place of common side dishes such as mashed potatoes.

**Reading Check** Describe What is the mise en place for legumes?

## SECTION 25.3 After You Read

### Review Key Concepts

1. **List** the various types of legumes.
2. **Describe** the process of preparing and cooking legumes.

### Practice Culinary Academics

#### English Language Arts

3. Write an advertisement promoting legumes as a healthful protein alternative to meat. Describe the health benefits and the advantages of substituting legumes for some of the meat in your diet.

**NCTE 6** Apply knowledge of language structure and conventions to discuss texts.

#### Social Studies

4. Besides being nutritious and high in protein, legumes may also have the ability to fix nitrogen from the air. This means that they could help fertilize soil for growing. Research this process and create a visual presentation to evaluate how it can benefit farmers.

**NCSS VII A Production, Distribution, and Consumption** Examine how the scarcity of productive resources requires the development of economic systems to make decisions about how goods and services are to be produced and distributed.

### Mathematics

5. Russell's restaurant serves a salad that requires 1.5 cups of cooked fava beans per serving. If a pound of dry fava beans is 2 cups by volume, and fava beans triple in volume when cooked, how many servings can he make from a 5-pound package of dry beans?

**Math Concept Multi-Step Problems** Study the problem carefully and determine the individual calculations you will need to make. Determine the proper order for those calculations by identifying the steps that require answers from other steps.

**Starting Hint** Start with the 5 pounds of dry beans, and determine how much volume (in cups) that weight represents. Then, determine the volume of those beans once cooked. How many 1.5-cup servings can you get from that total?

**NCTM Problem Solving** Apply and adapt a variety of appropriate strategies to solve problems.

Check your answers at this book's Online Learning Center at [glencoe.com](http://glencoe.com).

### Chapter Summary

There are eight categories of fruit. The quality characteristics of fruit vary with each type of fruit, its season, and its form. Fruits can be cooked using either dry or moist methods.

There are also eight classifications of vegetables. All vegetables are judged on their appearance and the condition they are in when they arrive on

the market. By applying the appropriate cooking technique, tender vegetables that are packed with nutrition and taste can be served.

There are dozens of types of legumes. Legumes should be brightly colored and uniformly sized. They should not be marked, discolored, shriveled or broken.

### Content and Academic Vocabulary Review

1. Label each of these vocabulary terms as a noun, verb, or adjective.

#### Content Vocabulary

- drupe (p. 638)
- in season (p. 638)
- lug (p. 638)
- ripe (p. 638)
- ethylene gas (p. 639)
- compote (p. 642)
- chutney (p. 642)
- rehydrate (p. 642)
- cobbler (p. 644)
- compotier (p. 645)
- fondue (p. 645)

- tuber (p. 647)
- floret (p. 647)
- solanine (p. 650)
- mealy potato (p. 650)
- waxy potato (p. 650)
- net weight (p. 652)
- drained weight (p. 652)
- packing medium (p. 652)
- mandoline (p. 653)
- bouquièrre (p. 658)
- legume (p. 660)
- pulse (p. 660)

- preprocessed legumes (p. 660)
- digestible (p. 663)
- quick soak (p. 663)

#### Academic Vocabulary

- lesser (p. 638)
- diminish (p. 638)
- hasten (p. 647)
- mark (p. 651)
- withered (p. 660)
- accessible (p. 663)

### Review Key Concepts

2. **Distinguish** between the different market forms of fruit.
3. **Identify** dry and moist methods of cooking fruit.
4. **Identify** the purchasing and storage for fresh, canned, frozen, and dried vegetables.
5. **Describe** dry and moist cooking methods for vegetables.
6. **List** the various types and quality characteristics of legumes.
7. **Describe** the process of preparing and cooking legumes.

### Critical Thinking

8. **Imagine** that you are in charge of selecting and purchasing fruit for your foodservice operation. How do you determine which fruits to buy?
9. **Evaluate** holding procedures. You have made a mashed potato dish for a dinner party and the entrée is running late. How can you keep the potatoes hot?
10. **Illustrate** your knowledge of storage. You have just received a delivery of potatoes, bananas, oranges, tomatoes, leafy greens, frozen corn, and dried split peas. How will you store them?



## Academic Skills

**English Language Arts**

- 11. Write a Memorandum** Imagine that you are a pastry chef in a foodservice operation. Write a memorandum to the executive chef and manager of the operation persuading them to use more fruit in the dessert menu. Use information from the chapter, but write in your own words and an appropriate business format and tone. Explain why fruit desserts are both delicious and more nutritious than other desserts.

**NCTE 4** Use written language to communicate effectively.

**Social Studies**

- 12. Fruit and Vegetable Pilot Program** The government encourages schools to offer fruits and vegetables as snacks by providing them free to participating schools as part of the USDA Fruit and Vegetable Pilot Program. Conduct research to learn more about this program. Find out if your school participates. If your class does not participate, consider writing letters to the administration to ask them to participate, if possible.

**NCSS VI B Power, Authority, and Governance** Explain the purpose of the government and analyze how its powers are acquired, used, and justified.

**Mathematics**

- 13. Make a Selection** Peter is updating his restaurant's Web site, and would like to add some photographs to add visual appeal. At the moment, he is preparing to take a picture of some fruit. He has a bowl containing an apricot, peach, papaya, plum, orange, pear, mango, apple, and banana. Peter would like to select three of the fruits and line them up for a picture. What is the total number of possible ways he can line up three different fruits?

**Math Concept Permutations** A permutation is an ordered arrangement of a group of items. If there are  $n$  total items, and you select  $r$  of them, then the number of permutations is equal to  $n! / [(n - r)!]$

**Starting Hint** There are nine total fruits, out of which Peter will select three. Use the permutation formula to determine the number of arrangements, which results in  $9! / 6!$ . If you write out the numerator and denominator in longhand (e.g.,  $9 \times 8 \times 7$  etc.), you will be able to cancel out many of the numbers, making your calculation easier.

**NCTM Data Analysis and Probability** Understand and apply basic concepts of probability.

## Certification Prep

**Directions** Read the questions. Then, read the answer choices and choose the best possible answer for each.

- 14.** What grade of fruit is purchased for fresh fruit salad?
- |                |                        |
|----------------|------------------------|
| a. U.S. Fancy  | c. U.S. Extra Standard |
| b. U.S. Choice | d. U.S. Standard       |
- 15.** What type of potato is ideal for baking and deep frying?
- |           |          |
|-----------|----------|
| a. russet | c. yukon |
| b. red    | d. sweet |

*Sharpen your test-taking skills to improve your kitchen certification program score.*

**Test-Taking Tip**

When you evaluate choices, locate the words you know right away and determine whether they fit with the question. If not, you can dismiss them right away.

## Real-World Skills and Applications

### Interpersonal and Collaborative Skills

**16. Global Cuisine** Follow your teacher's instructions to break into teams. Imagine that you are the staff of a new restaurant. As a team, create five dishes featuring fruit, vegetables, or legumes from other cultures. Share your dishes.

### Technology Applications

**18. Use the Internet** Use the Internet to find information about legumes. Learn five interesting pieces of information that you did not know before about legumes. Share what you have learned with the class. List the Web sites where you found the information.

### Self-Management Skills

**17. Estimate Juice Needs** Imagine that your foodservice operation serves freshly squeezed orange juice at breakfast. Each glass is 6 ounces and you expect about 25 customers for breakfast. Find out how to make fresh-squeezed juice and estimate how many oranges you will need for one day's breakfast.

### Financial Literacy

**19. Cost per Ounce** Often, package sizes of food vary and it is difficult to comparison shop for the best value. Most packages are labeled in ounces, however, so to comparison shop you must determine the cost per ounce. Which is a better bargain on pre-prepared fruit salad: an 8-ounce package for \$1.50, a 12-ounce container for \$1.75, or a 16-ounce container for \$2?

## Culinary Lab



Use the culinary skills you have learned in this chapter.

### Cook Fruits or Vegetables

**20. Compare Cooking Methods** Working in teams, you will compare the results of cooking fruits or vegetables for different lengths of time.

**A. Choose your fruit or vegetable.** Choose a fruit or vegetable to use for the lab. Create a chart like the one shown below.

Cooking Time	Texture of Fruit or Vegetable	Color of Fruit or Vegetable	Flavor of Fruit or Vegetable
5 Minutes			
10 Minutes			
20 Minutes			

**B. Begin cooking.** Prepare the fruit or vegetable for cooking, and then simmer for 5 minutes. After 5 minutes, remove one serving of the fruit or vegetable to a plate.

**C. Taste test.** Examine this serving of your fruit or vegetable and record your responses on the chart. Taste the fruit or vegetable and record the flavor changes.

**D. Continue cooking.** Repeat steps B and C twice more, filling in the chart with your observations each time.

### Create Your Evaluation

Answer the following questions as you review the observations on your chart:

- What conclusions can you draw about cooking times?
- Which stage of cooking did you prefer for the doneness of this fruit or vegetable?
- How does the length of cooking time and the cooking method impact a foodservice operation?

## Chefs and Cooks

*Chefs and cooks determine the fate of a restaurant's reputation.*

Whether a restaurant prides itself on home-style cooking or international dishes, it relies on the talent and expertise of its chefs and cooks. Depending upon the type and size of the establishment, chefs usually supervise the work of cooks.

Chefs and cooks rely on their judgment and experience as they constantly taste, smell, and season food being prepared in their kitchens. They must be able to work independently, as members of a team, under extreme pressure, and in crowded spaces. They make sure the food tastes good and is visually appealing.



**Ryan Marcoux,  
Sous Chef**

**Q Describe your job.**

**A** I am sous chef for Sel de la Terre, but recently my job description has become a little confusing because I am helping Sel de la Terre open a new restaurant. So, right now, I cook 50% of the time, but once we open the new location, I will cook 80% of the time.

**Q What is your typical work day like?**

**A** I go in at noon and work with the invoices, recipes, and menus. I meet with the head chef for the new location. I also meet with the wait staff to talk about our menu changes and prix fix for the day. During service, I do back expo and swing, which means I call the tickets to the hot line and help whoever is in the weeds.

**Q Why did you choose your career?**

**A** First, I love food. Second, I think some people are born to be in the kitchen, and I am one of them. Being a chef is a lifestyle. It takes a certain breed to do what we do.

**Q What education did you receive?**

**A** I earned a degree in Culinary Arts. This helped me with my fundamental knowledge of cooking but more importantly, it helped me understand how to manage a kitchen.

**Q How did you find your current job?**

**A** The Nicas family, who owns The Castle Restaurant, gave me my start. I completed a four-year apprenticeship, working there 40-plus hours a week while in school. This enabled me to show my commitment to this industry and gave me a solid résumé and great recommendations.

**Q What skills are most important to your job?**

**A** I think time management and organization are the most important skills because these help you focus on details, and details are what make the difference.

## Career Ingredients

<b>Education or Training</b>	Most employers require a culinary degree, and restaurant experience is usually a necessity.
<b>Academic Skills Required</b>	English Language Arts, Mathematics
<b>Aptitudes, Abilities, and Skills</b>	In-depth knowledge of the food industry, good eye-hand coordination, strong interpersonal and leadership skills, planning and organizational skills, ability to work independently and as a team, and ability to handle pressure.
<b>Workplace Safety</b>	Basic kitchen safety, sanitation, and food handling rules must be followed.
<b>Career Outlook</b>	Openings will be plentiful for years to come as the foodservice industry expands.
<b>Career Path</b>	Advancement depends on skill, training, and work experience. Chefs with supervisory experience may advance to executive chef.

## Career Pathways

<b>Executive chefs</b>	Highly-skilled chefs with years of experience. Their duties include hiring and supervising cooking staff, planning menus, and ordering food.
<b>Sous chefs</b>	Also known as area chefs, they are in charge of running the kitchen. They assist the executive chef and make sure that the staff is cooking, portioning, and garnishing food properly.
<b>Sauce chefs</b>	Prepare fish, stews, sautéed dishes, braised or roasted entrees, and sauces.
<b>Garde manger chefs</b>	Cold-food chefs who prepare appetizers, salads, ice carvings, buffets, and cold meat preparations.
<b>Roast cooks</b>	Specialize in oven-roasted, baked, fried, and grilled items.
<b>Vegetable cooks</b>	Cooks who specialize in pastas, vegetables, and soups.
<b>Pastry chefs</b>	Trained in the art of making hot, cold, and frozen pastries and breads.
<b>Restaurant chefs</b>	Known as line cooks, they are responsible for à la carte dishes.
<b>Tournants</b>	Cooks who take the place of absent staff members.

In a very large foodservice operation, the following could also be present: **soup cook, legume cook, fish cook, hors d'oeuvre cook, buffet cook, butcher, preserver cook, grill cook, fry cook, and staff cook.**

**Critical Thinking** What classes have you taken in school that might help you prepare for a career as a chef or cook?



Culinary certification programs include cooking techniques. Develop a recipe for a pasta dish, making sure it is both creative and healthful. The dish should be visually appealing, taste good, and incorporate a variety of ingredients.

### COMPETITION PRACTICE

Imagine you have been hired as a new vegetable cook, and the executive chef has asked you to prepare a new pasta dish. Prepare the dish you developed for the Get Certified practice. All preparation must be done within a time period specified by your teacher. Evaluate your efforts based on the following rating scale:

1 = Poor; 2 = Fair; 3 = Good; 4 = Great

Judge your menu on:

- Whether you finished your dish on time.
- The flavor of your dish and the ingredients you included.
- The visual appeal of your dish.

## Local and Seasonal Foods

*Many restaurant customers want meals that include fresh, local ingredients and foods. Using local, seasonal ingredients can make your menu more attractive.*

### My Journal

If you completed the journal entry from page 373, refer to it to see if you have used any local or seasonal ingredients in your cooking. Add any additional notes about how you can use these ingredients to spice up your culinary creations.

### English Language Arts

**NCTE 4** Use written language to communicate effectively.

**NCTE 7** Conduct research and gather, evaluate, and synthesize data to communicate discoveries.

## Project Assignment

### In this project, you will:

- Choose an ingredient or food that is raised or produced in your area or region.
- Conduct research about the ingredient or food you have chosen.
- Identify and interview someone about your ingredient or food.
- Prepare a presentation to share what you have learned with your class.

### Applied Culinary Skills Behind the Project

Your success in culinary arts will depend on your skills. Skills you will use in this project include:

- Selecting ingredients.
- Choosing recipes.
- Understanding moist and dry cooking methods.
- Understanding safety and sanitation.
- Choosing seasonings, flavorings, and herbs.

### English Language Arts Skills Behind the Project

The English Language Arts skills you will use for this project are writing, interviewing, and speaking skills. Remember these key concepts:

#### Writing Skills

- Use complete sentences.
- Use correct spelling and grammar.
- Organize your interview questions in the order you want to ask them.

#### Interviewing Skills

- Record interview responses and take notes.
- Listen attentively.
- When you transcribe your notes, write in complete sentences and use correct spelling and grammar.

#### Speaking Skills

- Speak clearly and concisely.
- Be sensitive to the needs of your audience.
- Use standard English to communicate.



## Step 1 Choose and Research Your Ingredient

Choose and research one ingredient or food that is produced in your area or region. Write a summary of your research to:

- Describe the characteristics of your ingredient or food.
- Explain how, when, and where your ingredient or food is typically produced.
- Identify and lists two recipes that use your ingredient or food.
- Describe moist and dry cooking methods for your chosen ingredient or food.
- List any safety and sanitation concerns.
- Review seasonings, flavorings, and herbs that work well with your chosen ingredient or food.

## Step 2 Plan Your Interview

Use the results of your research to write a list of interview questions to ask a local chef about your ingredient or food. Your questions might include:

- How would you describe the characteristics of the ingredient or food?
- What do you think are the best methods for preparing the ingredient or food?
- In what recipes have you used the ingredient or food?
- Would you choose this ingredient or food over other similar ingredients or foods?

## Step 3 Connect with Your Community

Identify a local chef you can interview about your ingredient or food. Conduct your interview using the questions you prepared in Step 2. Take notes during the interview and write a summary of the interview.



## Culinary Project Checklist

### Plan

- ✓ Select and research your topic and summarize your findings.
- ✓ Plan and write your interview questions.
- ✓ Interview a chef and write a summary of the information you learned.

### Present

- ✓ Make a presentation to your class to discuss the results of your research and your interview.
- ✓ Invite students to ask any questions they may have. Answer these questions.
- ✓ When students ask you questions, demonstrate in your answers that you respect their perspectives.
- ✓ Turn in the summary of your research, your interview questions, and the summary of the interview to your teacher.

## Step 4 Create Your Report

Use the Culinary Project Checklist to plan and give an oral report to share what you have learned with your classmates.

## Step 5 Evaluate Your Culinary and Academic Skills

Your project will be evaluated based on:

- Content and organization of your information.
- Proper use of standard English.
- Mechanics—presentation and neatness.
- Speaking and listening skills.



**Rubric** Go to this book's Online Learning Center at [glencoe.com](http://glencoe.com) for a rubric you can use to evaluate your final project.



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**Expert Advice** Go to this book's Online Learning Center at [glencoe.com](http://glencoe.com) to read an article by a culinary expert from Johnson & Wales University about how to find local and sustainable foods in your area.