

Pasta and Grains

SECTIONS

24.1 Pasta

24.2 Rice and Other Grains

WRITING ACTIVITY

Write Using Transitions

A transition is a word, phrase, or sentence that connects one part of a piece of writing to another. Write a description of the different types of pasta you know, focusing on the transitions.

Writing Tips

- 1 Think of how sentences fit into the whole.
- 2 Explain the relationship between different sentences and paragraphs.
- 3 Help the reader anticipate what is coming next.

EXPLORE THE PHOTO

Pasta allows you to combine different food groups into one hearty meal.

What types of ingredients do you like to add to pasta?



Pasta

Reading Guide

Before You Read

Study with a Buddy It can be difficult to review your own notes and quiz yourself on what you have just read. According to research, studying with a partner for just 12 minutes can help you study better.

Read to Learn

Key Concepts

- **Identify** the types, characteristics, and proper storage of pasta.
- **Outline** the best ways to cook pasta.
- **Explain** how to serve pasta.

Main Idea

Pasta is a staple in commercial kitchens and is a popular menu choice. To prepare it successfully, you must become familiar with the different varieties of pasta.

Content Vocabulary

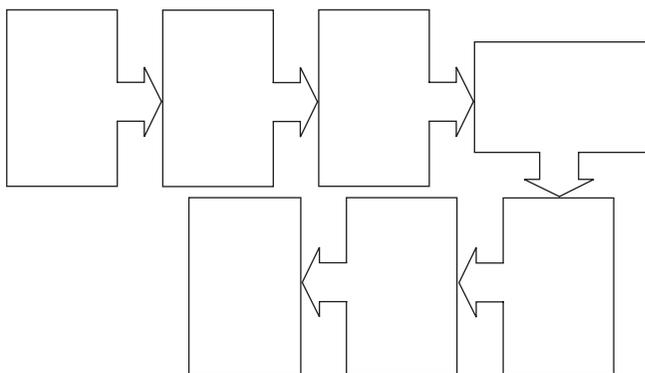
- pasta
- semolina flour
- casserole
- al dente
- colander
- soup plate

Academic Vocabulary

- labor
- achieve

Graphic Organizer

Use this sequence chart to list the seven steps of the general process for cooking pasta.



Graphic Organizer Go to this book's Online Learning Center at glencoe.com for a printable graphic organizer.

Pasta is one of the most versatile food items available.

ACADEMIC STANDARDS



English Language Arts

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



Mathematics

NCTM Number and Operations Understand meanings of operations and how they relate to one another.



Science

NSES B Develop an understanding of the structure and properties of matter.



Social Studies

NCSS IV E Individual Development and Identity Examine the interaction of ethnic, national, or cultural influences in specific situations or events.

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 Pasta

Pasta is one of the easiest and most versatile food products used today. It is available in a variety of sizes, shapes, colors, and flavors.

Pasta is a starchy food product that is made from grains. It is considered a staple in many commercial kitchens. Pasta increases in volume as it cooks and yields a high profit. Pasta is a very popular menu choice. To create successful pasta dishes, you need to become familiar with the varieties of pasta available and how to prepare them.

Pasta can be used in place of other starchy foods in a meal. One of the main ingredients of pasta is flour. Usually, wheat flour is used. The other main ingredient in pasta is a liquid, such as water or eggs. Oil is sometimes added to pasta dough to give it a richer texture.

Most commercial dried pastas are made from **semolina** (*ˌse-mə-ˈlē-nə*) **flour**, a hard-grain wheat flour that is high in the proteins that form gluten. Semolina flour produces a smooth dough and creamy yellow color.

There are more than 100 varieties of pasta available in a number of shapes, sizes, and flavors. A pasta's color reflects its flavor. You can buy pasta dried or fresh, but fresh pasta cooks faster.

The shape of some pastas makes them ideal for certain sauces. For example, a thinner, tomato-based sauce like marinara is ideal for angel hair pasta, while Alfredo sauce adheres well to fettuccini (*ˌfe-tə-ˈchē-nē*).

Quality Characteristics of Pasta

Imagine that a 20-pound case of pasta has been delivered to your establishment. Do you know if the pasta meets your restaurant's standards of quality? How can you tell? Here are two ways to determine the quality of the pasta used in foodservice operations:

- **Flour** Semolina, a high-protein flour, produces the best dry pasta. Dry pasta should contain 100% semolina flour.

- **Freshness** Dry pasta should be hard and brittle. It should snap cleanly instead of bending easily.

Purchasing and Storage

Both dried and fresh pasta usually are purchased by weight. Dried pasta is available in 1-, 5-, and 10-pound bags and boxes. Twenty-pound bulk cases are also common. Fresh pasta can be purchased in 1- to 2-pound boxes, or frozen in 10- to 20-pound cases. Fresh pasta is also available in bags or cartons.

Dried Pasta

Dried pastas, often purchased in bags or boxes, are available in tube, flat, and shaped forms. Tubes and shaped pastas are generally not available fresh. Dried pasta should be brittle and should break easily. The surface should look dull or be marked by small pits or scars. Sauces cannot soak into smooth, shiny, dried pasta.

Dried pasta comes in a variety of interesting and unusual flavors. Besides the typical spinach, tomato, and plain pastas, you can also get a variety of combination flavors, such as tomato-dill, spinach-herb, or carrot-ginger.

Dried pasta can be stored in a cool, dry place for several months. When storing dried pasta, temperatures in the storage area should be between 50°F to 70°F (10°C to 21°C).

❖ Nutrition Notes ❖

Nutrients in Pasta

All pasta products are high in carbohydrates and the B vitamins thiamin and riboflavin. The protein in pasta varies based on the amount of semolina it contains. Semolina is high in protein, so the more semolina that is used, the more protein the pasta provides. On average, one serving of pasta (2 ounces dry) contains 1 gram of fiber, 1 gram of fat, 3 grams of protein, and .65 milligrams of iron.

CRITICAL THINKING *Why might pasta that is higher in protein be more desirable to use than a pasta that is lower in protein?*

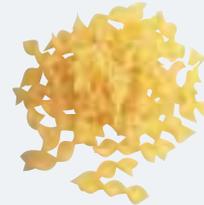
Common Pasta Shapes

Elbow Macaroni Elbow macaroni are curved, narrow tubes that are short in length. They are used baked, for macaroni and cheese, macaroni salad, and casseroles.



Spaghetti This pasta consists of thin, round strands. Very thin spaghetti is called spaghetti. Spaghetti is boiled, and served with meat or tomato sauce, oil, butter, or thin sauces.

Egg noodles Egg noodles are long or short ribbons with spinach, tomato, or other flavorings that are added to the dough. Egg noodles are baked into casseroles, some sauces, and puddings.



Lasagne (lə-¹zän-yə) These are wide, flat noodles that have rippled edges. They are used baked as a layered casserole with tomato sauce, cheese, and meat or seafood.

Capellini/Angel Hair (,ka-pə-¹lē-nē) Capellini is a fine, solid, strand-like pasta that is thinner than spaghetti. Capellini is boiled and used with thin sauces, seafood, tomatoes, garlic, or in soups.



Linguine (liŋ-¹gwē-nē) Linguine is thin, flattened spaghetti that is about 1/8-inch wide. It is boiled, and often served with clam sauce, marinara sauce, and seafood.

Farfalle (fär-¹fä-(,)lā) Farfalle are flat, wide noodles that are squeezed in the center to resemble bow ties before they are dried. Farfalle are boiled, or baked with artichokes or seafood. With farfalle, you would use medium or rich sauces with meat or vegetables.



Common Pasta Shapes

continued

Fettuccini (,fe-tə-'chē-nē) Fettuccini are flat, long, ¼-inch-wide noodles. They are best boiled and served with rich cream sauces, such as alfredo, or meat sauces that adhere well to these ribbon-like noodles.



Orzo ('örd-(,)zō) Orzo are small, rice-shaped pasta. They are best in pilaf, salads, and soups.

Fusilli (fyü-'si-lē) Fusilli are corkscrew-shaped twists. They are boiled, and baked in dishes with medium or thick, creamy sauces.



Manicotti (,ma-nə-'kă-tē) Manicotti are medium-size hollow tubes, cut straight or angled. They are stuffed with cheese, meat, seafood, or vegetables, and baked.

Soba ('sō-bə) Soba are Japanese noodles that are similar in appearance to egg pasta. They are made from buckwheat flour. Soba are used in Asian foods, hot and cold dishes, and salads.



Penne ('pe(n)-(,)nā) Penne are short- to medium-size hollow tubes that are cut diagonally. They are also called quills or pens. Penne are usually baked with hearty meat or tomato sauces and cheese.

Conchiglie (còn-'kē-lyā) Conchiglie pasta are shaped like shells. They are usually stuffed, or used in salads. They are good with meat or seafood sauces, and are often filled with seafood, meat, or cheese, and baked.



Fresh Pasta

Fresh pasta can be made in the kitchen. However, it requires a great deal of **labor**, or hard work, to produce. It is also difficult to get a consistent product. Fresh pasta can be purchased fresh or frozen. Fresh pasta also comes in a variety of flavors, such as spinach, tomato-garlic, and whole-wheat.

Fresh pasta must be tightly wrapped and kept refrigerated to prevent its drying out. Even when refrigerated, fresh pasta should be used within a few days after it has been made. It can also be kept in the freezer to be used within a few weeks.



Reading Check

Determine What standards of quality should you look for when evaluating pasta?

Cooking Pasta

Cooking pasta is a simple process. However, before you actually cook the pasta, you will need to complete the *mise en place* for everything you are going to use. You also will need to be familiar with the recipe. Some pasta dishes require the pasta to be fully cooked. Other recipes require pasta to be partially cooked and added to a casserole along with a variety of other ingredients. A **casserole** is a mixed food dish that is baked and served in a casserole dish.

Pasta can be boiled or baked. Boiling pasta is a simple process. Both fresh and dried pastas can be boiled. Baked pasta is usually one of the main ingredients of a casserole dish, such as stuffed manicotti or lasagne. When pasta is baked, the noodles are partly cooked first by boiling.

Boiling Pasta

When boiling pasta, you need to use enough water to cook it properly. Pasta can be cooked when a customer orders it. It also can be cooked in large amounts ahead of time. Dried pasta is sometimes cooked ahead

A TASTE OF HISTORY

1793

Marie Antoinette, queen of France, is beheaded

1798

A Frenchman opens one of the first pasta factories, in Philadelphia

Pass the Pasta

Popular legend has it that Marco Polo introduced pasta to Italy following his exploration of the Far East. There, the Chinese were making a noodle-like food as early as 3000 BCE. However, Italians ate pasta dishes many years before Marco Polo's journey. Greek mythology suggests that the Greek god Hephaestus invented a device that made strings of dough, which may very well have been the first spaghetti! Regardless of its origins, today, pasta dishes can be found all over the world.

History Application

Pasta comes in many shapes and sizes, and every country has its own variety. Create a chart that describes at least five different types of pasta. Vary the countries from which these types originate.

NCSS IV E Individual Development and Identity Examine the interaction of ethnic, national, or cultural influences in specific situations or events.

of time. Fresh pasta is not because it cooks quickly and becomes too soft.

Baking Pasta

When pasta is baked with a filling and a sauce, or simply a sauce, the flavors blend during the baking process. You cannot **achieve**, or do, this simply by adding a sauce to the top of plain cooked pasta.

Some types of pasta, such as lasagne noodles, are cooked and then layered in a casserole with other ingredients such as cheese, meat, spinach, and tomato sauce for a hearty, baked dish. Manicotti and cannelloni are stuffed with a filling such as cheese and covered in sauce. Macaroni and cheese is also a baked pasta dish. It is a popular dish in the United States.

Boil Pasta

- 1 Use at least 1 gallon of water for each pound of pasta in a large enough stockpot for the pasta to move around freely.
- 2 Add about 1 ounce of salt per gallon of water. The pasta will absorb the water and salt during the cooking process.
- 3 Bring the water to a full boil and add the pasta.
- 4 Stir the pasta with a large cooking spoon or braising fork occasionally as it continues to boil for the indicated time. The combination of rapid convection movement, the large amount of water, the small amount of pasta, and the stirring motion will keep the pasta from sticking together.



- 5 Test the pasta for doneness. The best way to tell if pasta is done is to taste it. Pasta that still has a white line through it is not done all the way.



- 6 Drain the cooked pasta into a colander.
- 7 If you will serve the pasta immediately, do not cool or rinse it. Just plate the pasta and serve it. If you will serve the pasta later, rinse it with cold, running tap water to halt the cooking process. Drain the pasta, add a small amount of oil, and toss it gently. This will help keep the pasta from sticking together. If you will serve pasta in a salad, let the pasta cool before you mix it in.

In most cases, the pasta is partially cooked before it is layered or stuffed. Then it is assembled with other ingredients and baked. In many foodservice operations, baked pasta dishes are served piping hot in individual baking dishes. They are usually accompanied by fresh bread and a cold, crispy salad on a separate plate.

Determine Doneness

When you cook Italian-style pasta, cook it **al dente** (äl-'den-(,)tā), or “to the bite,” meaning that the pasta is tender, but still firm. If pasta is cooked past the stage at which it is

tender but still firm when bitten into, it quickly becomes soft and mushy. This can make pasta very unappetizing.

Each type of pasta has a different cooking time. If pasta is overcooked or undercooked, the dish being prepared could be ruined. The amount of water, the altitude, and various other factors can affect the cooking time, too. It is important to check pasta carefully to stop the cooking process at the al dente stage.

To check for doneness, you can bite into a piece of the pasta. If it is tender, but still firm, remove the pasta from the heat and drain it carefully over the sink in a colander.

A **colander** is a container with small holes in the bottom for rinsing and draining food. Another alternative is to cut through a piece of pasta with a fork. If it cuts easily, it is done.

Stuffing Pasta

Once cooked, some pasta can be stuffed with ingredients. Tubular pastas, such as manicotti or cannelloni, are usually stuffed. Ravioli are stuffed squares, rounds, or triangles. A variety of other pasta shapes can be stuffed, too. The filling ingredients may include cheese, meat, seafood, poultry, or vegetables.

The fillings, with the exception of meat, can be cooked or uncooked. Meat fillings,

however, must be completely cooked before being stuffed into the pasta. This is because the time it takes the pasta to cook may not be sufficient to cook the meat safely.

Some large tubular pastas, such as cannelloni and manicotti, are often only partly cooked in boiling water. They are then stuffed with a filling and covered in a sauce. These dishes are baked as casseroles to finish the cooking process. When you partially cook pasta, make sure it does not become overcooked. It will continue to cook during baking. If it is too soft, it will not hold the stuffing well.

Reading Check Evaluate How do you determine the doneness of pasta?

HOW TO

Stuff Pasta

- 1 Determine the pasta to be used.
- 2 Prepare the pasta by cooking it in boiling, salted water. You can use either dry or fresh pasta. The cooking time will depend on the form of pasta used. It will also depend on whether you will fully or partially cook the pasta.
- 3 Make the filling and chill in the refrigerator.
- 4 Drain the pasta. Shock it in cold water to stop the cooking process. Drain before continuing.
- 5 Remove the filling from the refrigerator.
- 6 Ladle a small amount of sauce into the bottom of the baking dish or hotel pan.



- 7 Use a pastry bag to pipe the filling into the cooked pasta. Roll pasta, if necessary.



- 8 Place the stuffed pasta into the baking dish and ladle a small amount of sauce over the filled pasta.



- 9 Bake as indicated on the standardized recipe.

Investigate Starch

Sticky pasta is the result of improper cooking, and it can be avoided. When pasta is added to a pot of boiling water, the starch contained within the noodles begins to dissolve. As the pasta cools, the starch in the water turns into a sticky, glue-like substance. This substance attaches to the pasta and forms sticky clumps. To avoid sticky pasta, boil the pasta in a large pot of water. The more water used, the more area the starch has to disperse. This minimizes its attachment to the noodles.

Procedure

Cook 1½ pounds of pasta in 2½ quarts of salted, boiling water. Cook another ½ pound of pasta in 2 quarts of salted boiling water. Cook both pots of the pasta until they are done. Pour the contents of one pot into a strainer. Set the contents in one bowl. Repeat this procedure with the other pot, placing the pasta in a separate bowl.

Analysis

Write a paragraph to describe the appearance, consistency, and taste of each bowl of pasta. What differences do you notice? Speculate on why those differences exist.

NSES B Develop an understanding of the structure and properties of matter.

Serving Pasta

The first important rule of serving pasta is to serve it at the correct level of doneness. If you have boiled the pasta for the proper amount of time, it will be firm to the bite, or al dente. Undercooked pasta will be too hard and pasta that is cooked for too long will end up mushy. When pasta is cooked to order, it is important to plate and serve it immediately. The sauce and other ingredients must be added, and any side vegetables and garnishes must be ready to plate and serve to the customer immediately.

Often, pasta with sauce is served alone on a plate. Some pasta dishes are served on soup plates. A **soup plate** is a shallow bowl-shaped plate. Others are served as side dishes in smaller portions. After serving, you can freeze leftover cooked pasta by itself, though it freezes best in a sauce. Freeze it in serving-size portions for later convenience.

 **Reading Check** **Describe** What are the different ways that pasta is served?

SECTION 24.1

After You Read

Review Key Concepts

1. **Name** the two types of pasta available to buy.
2. **Explain** how to stuff pasta.
3. **Describe** how to prepare a kitchen for serving pasta.

Practice Culinary Academics

English Language Arts

4. Create an advertisement about a new type of pasta. Identify the pasta product, the audience, and the advertising medium (print, television, radio, or Internet). Research the properties of pasta and then share the product's benefits.

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



Mathematics

5. Your restaurant serves spaghetti in 1¾-cup servings. If it takes 4 ounces of dry spaghetti to produce 2 cups of cooked spaghetti, how many full servings can you get from a 5-pound bag of dry spaghetti?

Math Concept **Dividing Fractions** To divide when a fraction is involved, convert any mixed or whole numbers to improper fractions. Multiply the first fraction by the reciprocal of the second fraction. Reduce to lowest terms.

Starting Hint If one pound is 16 ounces, then 5 pounds is 16×5 ounces. Set up a proportion to find the number of cups of cooked pasta produced by that many ounces of dry spaghetti. Then, divide by 1¾.

NCTM Number and Operations Understand meanings of operations and how they relate to one another.



Check your answers at this book's Online Learning Center at glencoe.com.

Rice and Other Grains

Reading Guide

Before You Read

Prepare with a Partner Before you read, work with a partner. Read the titles of the heads and ask each other questions about the topics that will be discussed. Write down the questions you both have about each section. As you read, answer the questions you have identified.

Read to Learn

Key Concepts

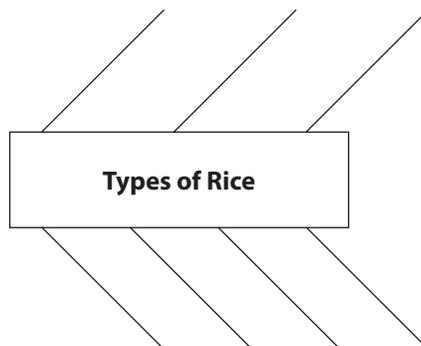
- **Describe** different varieties of rice.
- **Identify** common grains.
- **Demonstrate** various cooking methods used for rice and other grains.

Main Idea

Grains have a high nutritional value and can be dried for storage for long periods of time. This makes them a popular diet staple.

Graphic Organizer

As you read, use a herringbone organizer like this one to list the seven types and varieties of rice.



Graphic Organizer Go to this book's Online Learning Center at glencoe.com for a printable graphic organizer.

Content Vocabulary

- | | |
|------------------|---------------|
| ● grain | ● wheat |
| ● rice | ● couscous |
| ● risotto | ● corn |
| ● brown rice | ● polenta |
| ● white rice | ● hominy |
| ● enriched rice | ● masa harina |
| ● parboiled rice | ● pilaf |
| ● barley | method |
| ● oat | ● risotto |
| ● oat berry | method |

Academic Vocabulary

- | | |
|----------|-------------|
| ● option | ● versatile |
|----------|-------------|

Grains are a popular staple item in any foodservice business.

ACADEMIC STANDARDS



Mathematics

NCTM Number and Operations Understand numbers, ways of representing numbers, relationships among numbers, and number systems.



Social Studies

NCSS IX C Global Connections Analyze and evaluate the effects of changing technologies on the global community.

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 Rice

Grains are a staple in the diets of people around the world. This is because of the variety of grains, and the fact that they store well and have high nutritional value. A **grain** is a single, small, hard seed. Grains are packed with nutrients. The main nutrients in grains are in the form of carbohydrates and fat. Grains are usually dried for storage. Cooking grains with liquid adds water back to the dried grains. This makes the grain tender and edible. There is a wide variety of grains to choose from. Rice, wheat, and corn are three of the most common grains. Others include barley, oats, cornmeal, and hominy. By learning how to prepare rice and other grains, you will be able to prepare a variety of dishes.

Rice, the starchy seeds of a cereal grass, is served around the world. Rice picks up the flavors of other foods so it is often served as part of a main dish. Rice increases in volume as it cooks and yields a high profit.

All varieties of rice come in different grain types: short-grain, long-grain, and medium-grain.

- **Short-Grain** Short-grain rice contains the most starch. It becomes sticky when cooked, but is the most tender type of rice. Short-grain rice is used in risotto, for example. **Risotto** is a rice dish in which the grain has been sautéed in butter, and then simmered in a flavored cooking liquid, which has been added gradually to the rice until it has finished cooking.
- **Medium-Grain** Medium-grain rice is firm when it is hot. It becomes sticky, like short-grain rice, when it cools.
- **Long-Grain** Like short-grain rice, long-grain rice remains slightly firm when cooked properly. However, it should not become sticky when cooked. The grains of rice separate easily after cooking. Long-grain rice can be used in just about any food dish.



Rice Grains Pictured here are different grain types of rice. *How do rice grain types differ?*

Processing Rice

All three types of rice can be processed. Processing rice removes the hull, or outer covering, from the grain. If the grain is left alone, the rice is brown. If the grain is polished, the rice is white. White rice can be processed even further, producing converted rice and instant rice. Rice varieties are helpful in selecting rice for different menus.

Brown Rice

Rice that has had the hull, or outer covering, removed but is unpolished, is called brown rice. **Brown rice** has a tan color, a chewy texture, and slightly nutty taste. Available in long-grain, short-grain, and medium-grain, brown rice takes longer to cook and needs more cooking liquid than white rice.

White Rice

White rice has had the outer layers of the grain removed. Without the outer layers, the rice grain is white and cooks more quickly with less water. White rice has a lighter texture, but is also lower in some vitamins and minerals. There are many varieties of white rice: long-grain rice, short-grain rice, hard rice, soft rice, and enriched rice. **Enriched rice** has a vitamin and mineral coating added to the grain. This makes up for nutrients lost when the outer coating is removed. All types of white rice can be enriched.

Converted Rice

Converted rice, sometimes referred to as **parboiled rice**, has been partially cooked with steam and then dried. This process removes some of the surface starch and increases the nutrient value by forcing nutrients from the outer layer into the grain. After it is steamed, the rice is polished and milled. This results in a light, white-grain rice that has more nutrients than regular white rice.

Converted rice can be used in the same way as regular white rice, except that converted rice takes longer to cook and requires slightly more liquid. It also becomes very fluffy. The grains do not clump together if they are served from a steam table.

Specialty Rice

Many interesting, flavorful types of rice have made their way into American menus from a variety of foreign foods. These rices, with their different textures and flavors, offer foodservice professionals an interesting **option**, or choice, for including rice in planning menus.

Rice Handling and Storage

Uncooked rice should be stored in airtight containers at room temperature in a dry, dark room. White rice has a long shelf life if properly stored because the sprouting portion of the grain, which contains oil, has been removed with the hull. Brown rice, even when properly stored, has a shorter shelf life because the grain contains oil, which causes the rice to spoil sooner.

After rice has been cooked, it should be used as soon as possible. Its high protein content and neutral pH mean it can spoil easily and be dangerous to eat if left too long at room temperature. Make sure to refrigerate any unused, cooked rice as soon as possible.

 **Reading Check** **Identify** What are the three main types of rice grains?

Other Grains

Although rice is a very **versatile**, or adaptable, and popular grain, there are many other grains that can add variety and nutrition to the menu. The high carbohydrate and protein content of traditional grains, such as oats, wheat, and barley, can add nutritional value and flavor to any meal. In addition, specialty grains, such as kasha ('kă-shə), quinoa ('kēn-wā), and triticale ('tri-tə-'kā-lē), offer diverse flavors, textures, and colors.

Grains are also an important part of menu planning because they can be used from breakfast to dinner to prepare many different kinds of dishes. For example, kasha and oatmeal make excellent breakfast cereals. Cracked wheat can be used in cold salads.

Popular Specialty Rices

Arborio (ä-r-bör-ē-ō) Arborio is a short-grain, white rice that becomes sticky when it is cooked. Use 3 cups of water for every cup of rice. It is the best rice to use for risotto-style preparation.



Basmati (bäz-'mä-tē) Basmati has extra-long grains that are polished and cream-colored. It has a light, sweet flavor. Basmati is aged before it is used, so it should be well rinsed. Use 1½ cups of water for every cup of rice. Basmati has a delicate flavor that is best used in side dishes, including pilaf.

Jasmine ('jaz-mən) Jasmine is a long-grain white rice that is similar to basmati, but has a more delicate flavor. It is best as a side dish.



Wild Rice Wild rice is not a true rice, but a wild water grass. It is a brown and black grain that has a nutty flavor and chewy texture. There are three grades of wild rice, with the best having a very long grain. Cook wild rice in three times the amount of water as rice. Wild rice is served as a side dish and used in poultry stuffing. Lower grades are used in soups and baked goods.

Red Rice Red rice is also called Wehani (we-'hä-nē) rice. It has an aromatic, earthy flavor. It is served with meat and bean dishes.



Barley

Barley is a hardy, adaptable grain that can grow in both warm and cold climates. It is available unmilled, and in a form called pearled barley, which has been milled and polished.

Barley has a slightly sweet flavor and chewy texture. It is often added to soups and stews, giving them a hearty consistency and rich texture. Barley is also used as a poultry stuffing and as a pilaf side dish.

Because of its mild flavor, barley is a good candidate for cooking with onions, garlic, herbs, and other seasonings. Use a ratio of three parts liquid to one part barley to cook barley.

Oats

Oats are the berries of oat grass. They can be purchased as oatmeal and as a whole grain, called groats or oat berries. Oatmeal, a popular but plain hot cereal, can be dressed up with fruits, berries, cream, maple syrup, and other similar toppings to turn a simple breakfast into something special. Oatmeal also makes an excellent addition to bread and cookies. A ratio of two parts liquid to one part oats is used to cook oatmeal.

Oat berries, or groats, do not have the outer layer removed, so they are a whole grain, with all the texture and nutrients found in other whole grains. They can be cooked and served as a hot cereal, used to stuff poultry, and added to baked goods. A ratio of four parts liquid to one part oat groats is used.

Wheat Products

Wheat, in the form of flour, is a staple in bread-making and other kinds of baking. **Wheat** is actually a very versatile grain that is also milled into semolina and cracked wheat. These two wheat products can be served as side dishes, and used in stuffings and casseroles.

❖ Nutrition Notes ❖

Nutrients in Grains

Adding ingredients that have been removed during the milling process can increase the nutritional value of grains. For example, 4 ounces of toasted wheat germ adds 33 grams of protein, 56 grams of carbohydrates, 14 grams of fiber, 6 grams of niacin, and more than 1,000 milligrams each of potassium and phosphorus.

CRITICAL THINKING How do you think the milling process removes ingredients?

Couscous ('küs-,küs) is made from semolina that is milled from wheat.

Corn Products

Corn is different from the other grains discussed in this section because it can be eaten fresh. It also can be eaten as a dried grain. When eaten fresh, it is served as a vegetable. As a dried grain, it comes in two main forms: cornmeal, used to make breads and polenta; and hominy, a dried corn kernel.

Polenta

Polenta (pō-'len'tə) is made from cornmeal that is gradually sprinkled into simmering water or stock and cooked until it becomes a thick paste. It is the right consistency when it pulls away from the pot when stirred. Polenta can be served with butter, cheese, or various sauces. It also can be poured into shaped containers or spread on a baking sheet to cool. When cool, it can be sliced or cut into interesting shapes that can be baked, fried, grilled, or broiled. A very versatile food, polenta can be served as a breakfast food with maple syrup, as an appetizer, or as a side dish for dinner. Spices, dried tomatoes, cheese, herbs, and other ingredients can be added during the simmering process.

Hominy

Hominy is made by soaking dried corn in lye so that the kernels become swollen. As they swell, the outer layers loosen and are easily removed.

Hominy is often served as a side dish or added to soups. When cooking hominy, use 2 to 2½ times the amount of water as grain. Hominy also is made into other corn products, including grits, which are cracked hominy served as a side dish or as a cereal. Cook grits in four parts water to one part grits. **Masa harina** ('mä-sə ä-'rē-nä) is a finely ground hominy used in tortillas and breads.



Reading Check **Name** What are four different kinds of specialty grains?

Polenta

YIELD: 10 SERVINGS
SERVING SIZE: 4 OZ.

Ingredients

- 2 qts. Water

- 1½ tsp. Salt

- 1 lb. Cornmeal, medium-ground

Method of Preparation

1. In a medium saucepot, heat the water to a boil; add the salt, and gradually add the cornmeal, stirring continuously with a wooden spoon.
2. When mixture is blended without lumps, lower the heat, and simmer until thickened, approximately 30 minutes. When done, the polenta will pull away from the side of the pot.
3. Pour the polenta into an oiled pan, and spread to a ½-inch thickness.
4. Allow the polenta to rest a few minutes, then cut into portions. Hold at 135°F (57°C) or above.

International Flavor

Cornmeal is used in many different recipes throughout the world. Research these recipes, and create a chart showing the differences in ingredients and cooking techniques used.

- Arepas (Mexico)
- Wasna (Midwestern United States)
- gali akpono (Africa)

Chef Notes

It is important to get all of the lumps out of the polenta before it simmers. Otherwise, the lumps will stay and make the polenta unappealing.

Substitutions

- Use herbs for flavor instead of salt to lower the sodium content.
- Add lemon for additional flavor and interest.

Cooking Technique

Simmer

1. Heat the cooking liquid to the proper temperature.
2. Submerge the food product completely.
3. Keep the cooked product moist and warm.

Glossary

Cornmeal ground corn used in cooking and baking
Rest off of heat, and unstirred

HACCP

- Hold at 135°F (57°C) or above

Hazardous Foods

None

Nutrition

Calories 170	Calories from Fat 5
Total Fat 1g	
Saturated Fat 0g	
Trans Fat 0g	
Cholesterol 0mg	
Sodium 300mg	
Total Carbohydrate 36g	
Fiber 2g	
Sugars 1g	
Protein 3g	
• Vitamin A 2%	• Vitamin C 0%
• Calcium 0%	• Iron 2%

Wheat Grains

Cracked Wheat The whole wheat berry is cracked into irregular pieces. These pieces cook more quickly than whole berries. Cracked wheat has a brown exterior and a white interior. This unmilled grain is high in nutrients. Cook it in twice as much water as wheat. It is best used in side dishes, and as a hot cereal.



Semolina Semolina is made when the bran and germ are removed from Durum wheat. It comes in cream-colored pellets that are partially cooked. To cook semolina, soak it briefly in water, drain, and steam until tender. It is best for side dishes, as a hot cereal, in dumplings, and for sweet pudding.

Couscous Couscous is a granular form of semolina. To cook it, soak it in water, drain, and then steam it. Packaged, precooked couscous is also available. Add precooked couscous to boiling water and let it stand about five minutes. Couscous is used for sweet and savory side dishes.



Kasha Kasha is hulled, roasted buckwheat groats that are sometimes ground or cracked. It has a strong nutty flavor. Cook kasha in 1 to 1½ times the water as groats. Kasha is used in side dishes and cold salads.

Quinoa Quinoa is a small, bead-shaped grain. It has an ivory color and a neutral flavor. Quinoa cooks quickly and is high in protein. Add it to side dishes and soups.



Triticale Triticale is a type of wheat and rye that has more protein, a nutty-sweet flavor, and a low gluten content. It comes as berries, flour, or flakes. Triticale is cooked similarly to cracked wheat and semolina. It is used in side dishes, casseroles, and as a cereal.

Wheat Grains

continued

Kamut (kä-¹mōōt) Kamut is brown and has a rice-like shape. It has an earthy, nutty flavor. Ground kamut is used in baked goods and pasta making.



Spelt (¹spelt) Spelt is a wheat product that is available as a whole grain or ground. It can be boiled or simmered, and has a mild, nutty flavor. It is used in baked goods.

Amaranth Amaranth is a very small, round grain that is light brown in color. It is used in salads, baked goods, and in cooking.



Cooking Rice and Other Grains

Cooking rice and grains involves adding enough water to make the grain moist and tender. Depending upon the length of the rice or grain, the proportion of water to rice or grain, and the cooking method, the product can be light and fluffy or sticky. The degree of tenderness may vary, depending on the grain and the way in which it will be served.

Boiling

To boil grains, the grain is added to slightly salted, boiling water and then simmered until tender. Boiling produces a good product that can be served as is or incorporated into other dishes such as salads or casseroles. The proportion of water to grain is about the same as for cooking pasta.

Steaming

Steaming grains is different from steaming vegetables. To steam grains, add the appropriate amount of boiling liquid to the grain.

Cover and cook the grain until the liquid is completely absorbed by the grain.

Grains can be steamed in a saucepan on the rangetop. They can also be steamed in the appropriate bakeware in the oven, or steamed in a convection steamer or rice cooker.

Braising

Braising, often called the **pilaf method**, involves sautéing the grain in oil or butter before adding the liquid. Often, onions, garlic, seasonings, and items such as red or green peppers may be added to the rice during the sautéing process. The coating of oil on each grain results in a fluffy product in which individual grains do not stick together.

Once the grain is sautéed, a seasoned liquid is added. The grain is then usually cooked on the range in a saucepan or baked in the oven in a hotel pan.

Generally, the grain is done when all the water has been absorbed and there are small, tube-like holes on the surface. Cooking can either be completed on the range, or the saucepan or stockpot can be removed from the heat for the last 5 or 10 minutes of cooking and left to stand tightly covered.

Cooking in the oven instead of on the range is the preferred method because the uniform heat results in a more flavorful product in which each grain remains separate from the others. Ethnic spices and a variety of chopped foods can be added after sautéing, before the liquid is added.

Risotto

The **risotto method** is a little like boiling and the pilaf method combined. First, the grain is sautéed, and then a small amount of hot liquid, often a soup stock, is added. The grain is stirred until most of the liquid is absorbed. This process of adding liquid and stirring the grain is continued until the grain is completely cooked. When the grain is done, it will still be firm. Seasonings and chopped mushrooms can be added to risotto after the sautéing stage.

Risotto Cooking Method

Grains cooked with the risotto method are creamy. Risotto should be served immediately after being cooked to maintain its texture and creamy consistency. Butter, olive oil, or cheese are often stirred in just before serving.

Serving Rice and Other Grains

All grains should be served as soon as possible after being cooked. They lose their texture quickly and can become either clumped or dried out if they are held for a long period of time. Any grains not used immediately after being cooked should be properly cooled, labeled, dated, and refrigerated in an air-tight container.

Reading Check Describe What are the four most common ways of cooking grains?

HOW TO

Make Risotto

- 1 Simmer the seasoned liquid in a pot.
- 2 In a separate saucepan, heat the fat.
- 3 When the fat is melted, add onions, garlic, and seasonings. Sauté for two minutes.
- 4 Add the grains to the melted fat and other ingredients in the saucepan. Stir the grains into the fat so they are evenly coated. Do not scorch the grains.

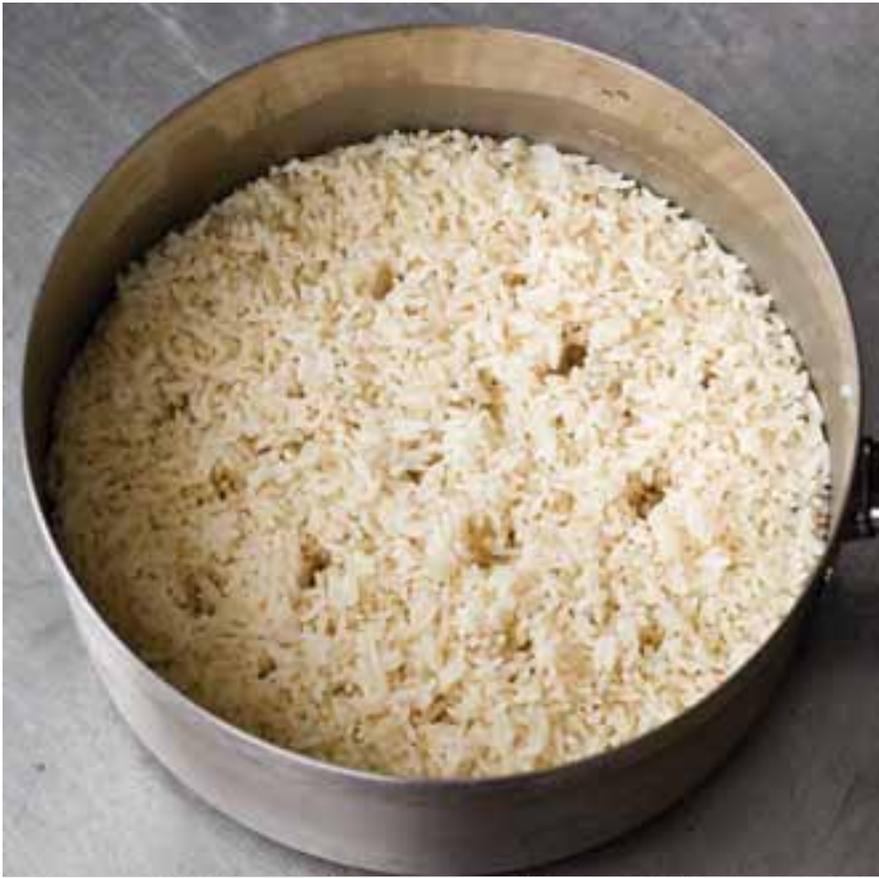


- 5 Gradually add the simmering liquid to the grains in stages. Stir frequently to prevent scorching.



- 6 Test for doneness.
- 7 Remove saucepan from heat source.
- 8 Add butter, herbs, and cheese. Mix and serve.





 **Steamed Rice** Rice can be steamed in a rice cooker or in a pot with a lid. *How do you know that this rice is cooked?*

SECTION 24.2

After You Read

Review Key Concepts

1. **Explain** how to store rice properly.
2. **Describe** two corn products that can be made from hominy.
3. **Identify** the proper way to serve rice and other grains.

Practice Culinary Academics



Social Studies

4. Rice and other grains are a diet staple in almost every country. Technology has been developed to genetically modify rice. Research genetically modified rice and write a report on what it is, how and why it is modified, and any pros and cons of using it. Cite your sources in your report and turn in your research notes with your paper to your teacher.

NCSS IX C Global Connections Analyze and evaluate the effects of changing technologies on the global community.



Mathematics

5. Abigail can buy a 20-pound bag of rice from one supplier for \$19.59. She can buy a 12-pound bag of rice from a second supplier for \$12.99. She can also purchase 5-pound bags for \$7.75 each. Which of the three options is the best buy?

Math Concept Unit Price To compare prices for differing amounts of an item, calculate a unit price for each item by dividing the price by the quantity. This tells you the price of one unit.

Starting Hint For each of the three products, divide the price for the entire package by the number of pounds in the package. This will tell you the price per pound for each item.

NCTM Number and Operations Understand numbers, ways of representing numbers, relationships among numbers, and number systems.



Check your answers at this book's Online Learning Center at glencoe.com.

Chapter Summary

Pasta is a staple food in most commercial kitchens. Most pasta is made from semolina flour. It is available fresh or dried. Pasta can be boiled or baked. Pasta can also be stuffed.

Grains have a high nutritional value and can be dried for storage for long periods of time.

There are many different types of rice, wheat grains, and other grains. Grains can be steamed, braised, boiled, or cooked by the risotto method. Grains should be served as soon as possible after being cooked. They should be stored in an airtight container in the refrigerator.

Content and Academic Vocabulary Review

1. Write each of the terms below on an index card, with definitions on the back. Use them to review.

Content Vocabulary

- pasta (p. 616)
- semolina flour (p. 616)
- casserole (p. 619)
- al dente (p. 620)
- colander (p. 621)
- soup plate (p. 622)
- grain (p. 624)
- rice (p. 624)
- risotto (p. 624)
- brown rice (p. 625)
- white rice (p. 625)
- enriched rice (p. 625)
- parboiled rice (p. 625)
- barley (p. 626)
- oat (p. 627)
- oat berry (p. 627)
- wheat (p. 627)
- couscous (p. 627)
- corn (p. 627)
- polenta (p. 627)
- hominy (p. 627)

- masa harina (p. 627)
- pilaf method (p. 630)
- risotto method (p. 631)

Academic Vocabulary

- labor (p. 619)
- achieve (p. 619)
- option (p. 625)
- versatile (p. 625)

Review Key Concepts

2. **Identify** the types, quality characteristics, and proper storage of pasta.
3. **Outline** the best ways of cooking pasta.
4. **Explain** how to serve pasta.
5. **Describe** different varieties of rice.
6. **Identify** common grains.
7. **Demonstrate** various cooking methods used for rice and other grains.

Critical Thinking

8. **Evaluate** a cooking problem. Your cannelloni dish did not hold together during cooking. You partially cooked the pasta before stuffing. Why might the dish have fallen apart?
9. **Analyze** the different types of rice steamers. Compare the features and price and draw conclusions about their effectiveness and efficiency.
10. **Imagine** that you have been asked to prepare rice for 150 people at a banquet. What equipment would you use and how would you keep the rice hot?

Academic Skills

**English Language Arts**

- 11. Create a Grain Chart** Create a chart that shows the different types of grains, as well as some information about each grain, such as suggested uses and cooking times. Include an illustration, or glue an example grain to the chart as an illustration. Hang the charts around the room when they are complete and use them for reference as you create original dishes.

NCTE 4 Use written language to communicate effectively.

**Science**

- 12. Design an Experiment** When rice is cooked, the starches it contains will determine whether the rice becomes sticky or fluffy.
- Procedure** Design an experiment to determine the starch content of different types of rice using the scientific method. Begin by coming up with a hypothesis (educated guess) about the results and then create a procedure to test your results. Perform the experiment. Take notes during your experiment.
- Analysis** Examine your notes. Write up your results in a lab report. Was your hypothesis true or untrue? Is there anything you would change about your procedure?

NSES A Develop abilities necessary to do scientific inquiry.

**Mathematics**

- 13. Evaluate Logical Statements** Antonio's Italian restaurant has a small menu, serving just 15 types of pasta, each priced at \$12. In addition to the pasta, Antonio also serves two daily fish specials, priced at \$18 each. Determine whether the following conditional statements are true or false: (a) "If a customer ordered spaghetti, he was charged \$12." (b) "If a customer paid \$18 for food, she ordered a fish special." Now, write the converse of each statement, and determine if the converse is true or false.

Math Concept **Converse of a Conditional Statement** A conditional statement is one that is written in if/then format, and can be either true or false. To take the converse of a conditional statement, switch the order of the hypothesis (the original "if" part of the statement) and the conclusion (the "then" part).

Starting Hint Imagine the statement, "If it is raining, then the sun is not shining." To find the converse of this statement, swap the "if" and "then" portions of the statement: "If the sun is not shining, then it is raining." Note that while the original statement is true, the converse is false (just because it is not sunny does not mean that it is raining). However, the converse does not always have the opposite truth value of the original statement.

NCTM Reasoning and Proof Select and use various types of reasoning and methods of proof.

Certification Prep



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

- 14.** How much water should you use to cook one pound of pasta?
- | | |
|-------------|-------------|
| a. 8 ounces | c. 1 gallon |
| b. 1 litre | d. 1 cup |
- 15.** What rice is used to make risotto?
- | | |
|------------|--------------|
| a. arborio | c. jasmine |
| b. basmati | d. wild rice |

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

Test-Taking Tip

If you run up against a word you do not recognize, try to use the context to figure it out. Sometimes the way the word is used in a sentence can help you figure out its definition.

Real-World Skills and Applications

Interpersonal and Collaborative Skills

- 16. Improve School Menus** Divide into groups at your teacher's instruction. Imagine that your group has been hired as consultants by the school cafeteria. Suggest five healthful grain dishes that could be added to the menu. Present your suggestions in the form of a report to the school administration. Include the specific types of grain in your report.

Critical Thinking Skills

- 17. Liven Up Your Diet** As a class, list all of the common grain foods people eat. Think up alternate grain foods that could be substituted for those you have listed, based on information from this chapter, for more variety. For example, instead of sandwich bread, perhaps you might try a flatbread or pita. Create a chart to show your substitutions.

Technology Applications

- 18. Online Research** With guidance from your teacher or parents, use the Internet to research a grain that is new to you. Find out about the appearance of the grain, the processing, the taste and texture, and how it is cooked and prepared. Use a word processing program to write a report on your information. Include all of the information you have gathered.

Financial Literacy

- 19. Choose a Market Form** Lee owns a restaurant that serves pasta dishes. Lee is deciding which market form of linguine to purchase at the market. Fresh linguine is \$5.00 for 11 ounces. Frozen linguine is \$9.00 for 24 ounces, and dried linguine is \$2.00 for an 8-ounce box. Calculate the cost per ounce and determine which of the three options is the best bargain.

Culinary Lab



Use the culinary skills you have learned in this chapter.

Prepare Polenta

- 20. Work In Teams** In this lab, you will divide into teams and prepare polenta using different versions of one recipe, then compare the results.
- A. Form teams.** Divide into four teams at the instruction of your teacher. Each team will prepare a variation of the polenta recipe on page 628.
- B. Prepare your work station.** Make a list of the equipment and smallwares your team will need to prepare its version of the recipe.
- C. Cook your polenta.** Team A will substitute 2 quarts vegetable stock for water. Team B will substitute 2 quarts chicken stock and 4 ounces butter in place of water. Team C will add 6 ounces diced and sautéed carrots, onions, and green pepper just before step 2. Team D will add lemon pepper seasoning and diced fresh red peppers just before step 3.
- D. Evaluate the results.** Plate one serving of your version of the polenta, divide it into four equal pieces, and serve one piece to each team.

Create Your Evaluation

After sampling each of the polenta dishes, answer each of the following questions on a piece of notebook paper:

- Which variation of the polenta recipe was the most time consuming to prepare? Why?
- Which variation of the polenta recipe was the most difficult to prepare? Why?
- Which variation of the polenta recipe made the best presentation? Why?
- Which variation of the polenta recipe tasted the best? Why?