

Discuss

Have students discuss why using standard measuring tools is important when following recipes. What might happen to the food product if ingredients are measured incorrectly?

Certain skills are needed to get the results you want from your recipes. To follow the directions in a recipe, you must learn the measuring, cutting, mixing, and cooking terms used and know which tools to use.

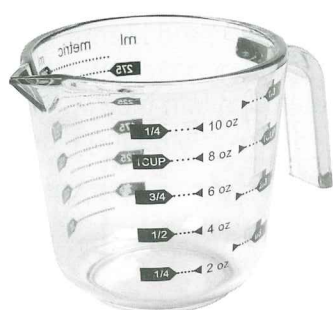
Measuring Ingredients

Specially marked cups and spoons used to measure ingredients are called **standard measuring tools**. See 9-10. They are marked to show exact amounts. Use standard measuring tools every time you prepare food. They will help make your recipes turn out just right.

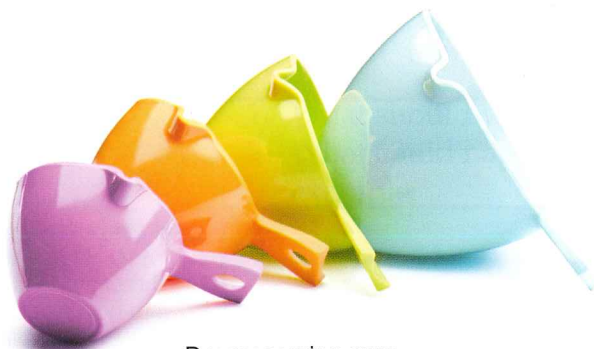
There are three different types of standard measuring tools. The first type is *liquid measuring cups*. Use these to measure liquid ingredients, such as milk, water, and oil. They are made of clear glass or plastic with pouring spouts. They come in 1-, 2-, and 4-cup sizes. Lines on the sides of these cups measure fractions of a cup.

The second type of standard measuring tool is *dry measuring cups*. Use these to measure dry ingredients, such as flour and sugar. They often come in 1-, $\frac{1}{2}$ -, $\frac{1}{3}$ -, and $\frac{1}{4}$ -cup sizes. They may come in other sizes, too.

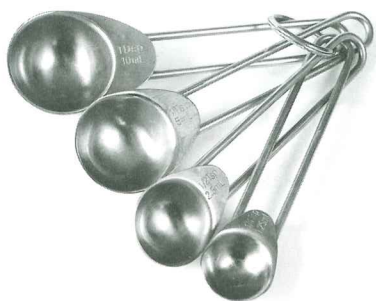
The last type of standard measuring tool is *measuring spoons*. Use measuring spoons to measure both liquid and dry ingredients. You will want to use measuring spoons when the recipe calls for less than $\frac{1}{4}$ cup of any ingredient. They come in 1-tablespoon and 1-, $\frac{1}{2}$ -, and $\frac{1}{4}$ -teaspoon sizes. They may also come in other sizes.



Liquid measuring cup



Dry measuring cups



Measuring spoons

9-10

Standard measuring tools come in different sizes to help you measure ingredients accurately.

Measuring Methods

There are many ways to measure ingredients used in recipes. You will need to use different methods to measure different ingredients. For instance, ingredients such as brown sugar and peanut butter require special measuring methods. See 9-11.

Equivalent Measures

Sometimes, you may need to make more or less of what your recipe tells you it makes. In that case, you may decide to double the recipe or cut it in half. You

Measuring Methods

To measure liquid ingredients, such as milk, water, juice, oil, and melted fat, follow these steps:

1. Place a liquid measuring cup on a level surface.
2. Pour the liquid into the cup to the correct line.
3. Check the measure at eye level to be sure you have measured the right amount.

To measure dry ingredients, such as flour, granulated sugar, salt, baking powder, cocoa, spices, and confectioners' sugar, follow these steps:

1. Use a dry measuring cup or spoon.
2. Use a spoon to fill the measuring cup or spoon to overflowing. Do not pack or shake the ingredient into the cup or spoon unless the recipe tells you to do so.
3. Level the measuring cup or spoon with a straight-edged spatula.
4. If needed, sift the ingredients before measuring. If the recipe calls for 2 cups sifted flour, sift the flour before measuring. If the recipe calls for 2 cups flour and then tells you to sift it, do so after measuring. Confectioners' sugar should be sifted before measuring. Granulated sugar should be sifted if it has lumps in it.

To measure brown sugar, follow these steps:

1. Use a dry measuring cup or measuring spoon.
2. Lightly pack the brown sugar into the cup or spoon.
3. Level the cup or spoon by packing the brown sugar, so that it is even with the top of the cup or spoon. You can also level the cup or spoon with a straight-edged spatula.
4. If it is measured correctly, the brown sugar will stay the shape of the cup or spoon when it is emptied.

To measure shortening and foods such as peanut butter and mayonnaise, follow these steps:

1. Use a dry measuring cup or measuring spoon.
2. Pack the food into the cup or spoon so there are no air spaces.
3. Level with a rubber scraper.
4. Use the rubber scraper to scrape all the food from the cup or spoon.

Discuss

Why does the method for measuring brown sugar differ from measuring granulated sugar?

Research

Have the students visit the Exploratorium's Science of Cooking website to find more information about the *science of cooking*. This website has recipes and activities, interactive tools, and great information about cooking meat, eggs, candy, and breads. The Kitchen Labs also include interesting food experiments. Pick one of the easy recipes you could make as a class and have the students read about it the night before.

9-11 Using the proper methods is important when measuring ingredients.

will need to determine the new amounts of ingredients for more or less servings. An *equivalent measures chart* tells you how much of one measure equals a larger measuring amount. See **9-12**.



Reading Review

1. When should you use a measuring spoon instead of a measuring cup?
2. When would you refer to an equivalent measures chart?

Discuss

Which kitchen tools are used to cut foods? Discuss the different cutting terms and the correct utensils needed to perform those tasks.

Equivalent Measures	
Dry and Liquid Measures	3 teaspoons = 1 tablespoon 4 tablespoons = $\frac{1}{4}$ cup 8 tablespoons = $\frac{1}{2}$ cup 12 tablespoons = $\frac{3}{4}$ cup 16 tablespoons = 1 cup few grains, dash, or pinch = less than $\frac{1}{8}$ teaspoon
Liquid Measures	2 tablespoons = 1 fluid ounce 1 cup = 8 fluid ounces 2 cups = 16 fluid ounces = 1 pint 4 cups = 32 fluid ounces = 1 quart 2 pints = 1 quart 4 quarts = 1 gallon
Dry Measures	16 ounces = 1 pound 8 quarts = 1 peck 4 pecks = 1 bushel

9-12

Understanding how equivalent measures are used helps when doubling or halving recipes.

Cutting Ingredients

Some recipes call for ingredients to be cut. **Cut** is to divide food into small pieces with a sharp knife or kitchen shears. Other cutting tools may include vegetable peelers, graters, choppers, and food processors.

Food processors are electric kitchen appliances that cut ingredients in different forms and also mix them.

You must know which tool to use for the different types of cutting. For instance, cheese can be cubed, grated, or sliced. Recipes often refer to cutting in the following ways:

- **Chop:** cut into small pieces using a sharp knife, food processor, or blender.
- **Core:** remove the center, or core, of a food using a sharp knife.
- **Cube:** cut in small, even cubes using a sharp knife.
- **Grate:** rub a food back and forth against a grater to get very small pieces.
- **Mince:** cut into very small pieces with a sharp knife or kitchen shears.

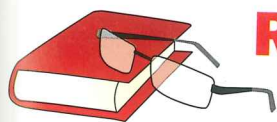


Math Link

Doubling Recipes

There may be times when the recipe you want to use will not make enough for the number of people you need to serve. Sometimes, the recipe may make more than you need. You can double most recipes or cut them in half without problems. Select a recipe that has at least five ingredients. Refer to the *Equivalent Measures* in Figure 9-12 to help you double the recipe. Then practice cutting the same recipe in half.

- **Pare or peel:** remove the skin of a food using a paring knife or vegetable peeler. Peel fruits, such as oranges and bananas, by hand.
- **Slice:** cut food into even pieces using a knife or food processor. Slice vegetables before cooking. Slice bread and meat after cooking.



Reading Review

1. Why should you know how to cut foods correctly when following recipes?
2. What are some different tools that can be used for cutting?

Mixing Ingredients

Recipes use different mixing terms to tell you exactly how to combine ingredients. See 9-13. They sometimes tell you which tools to use. When you mix ingredients properly, you will get good results. Mixing tools include spoons, whisks, hand or electric mixers, and food processors.

Activity

Prepare a demonstration using bowls and mixing tools. Bring a *food processor* to class and demonstrate (with some class volunteers) to show how ingredients can be mixed by hand or using a food processor.

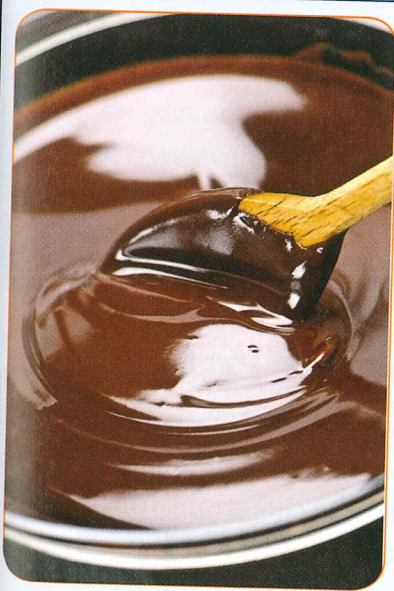
Activity

Ask students to choose a mixing or cutting method and demonstrate it to the class. As they demonstrate, have them explain the proper way to perform each task. Make sure to use the right tools.

Discuss

Have students discuss why cooking is really chemistry done in the kitchen. Ask students to think of examples of *kitchen chemistry*.

Mixing Methods



Blend: mix slowly using a spoon or an electric mixer on low speed.

Beat: mix fast bringing the contents to the top of the bowl and then back down again. Spoons, rotary beaters, or electric mixers are used for beating.

Combine: mix two or more ingredients together using a spoon.

Fold: mix a light, airy substance with a more solid substance by folding the two together with a rubber scraper. An example is mixing whipped cream with chocolate syrup. Use a very slow, careful over and over motion.

Cream: beat a mixture until it is light and fluffy using a spoon or electric mixer. This method is often used to mix sugar and shortening.

Stir: mix in a circular motion using a spoon.

Cut in: mix solid shortening into a flour mixture using two knives or a pastry blender to cut through the shortening.

Whip: beat quickly using a wire whisk or rotary beater to add air to one or more ingredients.

9-13 These are a few common ways to mix ingredients.

Discuss

Why is it important to cook the ingredients according to the recipe? How does overcooking or undercooking affect the taste of food? Give examples.

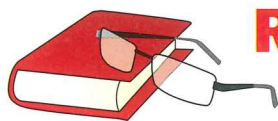
Discuss

Find recipes for foods cooked in the microwave oven. What are the directions about covering the container or dish? Why is covering the dish important?

Activity

Review the cooking terms in 9-14. With a partner, list two foods you could prepare by each cooking method. Share in class.

Sometimes, ingredients must be mixed quickly. Other times, they need to be mixed slowly. Ingredients can also be mixed for short or long periods of time. Recipes may tell you to mix all the ingredients together at once or to add a few ingredients at a time. Follow the recipes' directions. Otherwise, your food may not turn out right.



Reading Review

1. What are three common ways to mix ingredients?
2. What can happen if you do not follow a recipe's mixing directions?

Following Cooking Temperatures

Recipes give the proper temperature and length of time for cooking or baking. Read the directions carefully. Sometimes, you may need to use two different temperatures for one recipe. For instance, apple pie is baked at 425°F (218°C) for 10 minutes in a conventional oven. Then, the heat is lowered to 350°F (177°C) for 30 to 40 minutes. Cooking foods at the wrong temperature can burn the food or change the traits of the ingredients. The foods may not turn out as you expected.



Reading Review

1. When might you need to use two temperatures for cooking? Give an example.
2. What can happen to food if you cook it at the wrong temperature?

Understanding Cooking Terms

Another way to help your food turn out right is to understand all the cooking terms used in recipes. These terms describe the different ways to cook food. See 9-14. Be sure you carefully follow the directions for these terms. Otherwise, the food may be overcooked or undercooked.



Reading Review

1. Name and briefly describe five different cooking terms.
2. Why is it important to understand all the cooking terms in a recipe?

Cooking Terms

- Bake:** cook in an oven in an uncovered container.
- Boil:** heat a liquid on a cooktop at a high temperature. Bubbles should constantly rise and break the surface.
- Braise:** cooking technique that combines browning and simmering. Brown food in a small amount of fat. Then, add a little liquid and simmer in a covered container.
- Broil:** cook by direct heat by placing the food under the heat source.
- Brown:** cook in fat until surface of food turns brown.
- Cook:** prepare food for eating using heat.
- Deep fry:** cook in enough hot fat to cover the food.
- Dry-heat cooking:** cook foods without liquids.
- Fry:** cook in fat or oil in a pan.
- Grill:** cook by direct heat by placing the food over the heat source. Heat sources can be gas, electric, charcoal, or wood.
- Microwave:** cook in a microwave oven.
- Moist-heat cooking:** cook foods by adding water or other liquids.
- Pan-fry:** cook in enough hot fat to cover the food halfway.
- Poach:** cook in liquid at a low temperature.
- Roast:** cook uncovered in an oven without liquid.
- Sauté:** cook small pieces of food in a small amount of fat, stirring often.
- Simmer:** cook in liquid at a temperature just below boiling. Bubbles form only along the edges of the pan and do not break the surface.
- Steam:** cook in a covered container on a rack above liquid that is boiling.
- Stew:** cook in enough liquid for ingredients to float freely.
- Stir-fry:** cook evenly cut pieces of food in a small amount of fat, stirring frequently.

Discuss

Ask how many of your students already have hands-on experience with each of the cooking terms. What are their favorite dishes to make?

Activity

Create a word game to help the class learn the different mixing, cutting, and cooking terms in this section. Be creative. Play this game with your classmates.

9-14 These are just a few of the many cooking terms you will find in recipes.

Section Summary

- Ingredients must be measured carefully.
- Be sure to use the correct standard measuring tools for measuring liquid and dry ingredients.
- If the recipe calls for ingredients to be cut a certain way, this must also be done properly to get good results.
- When you mix ingredients, use the right tools.
- Cook foods at the proper temperature and for the amount of time in the recipe.
- You need to understand all the cooking terms in a recipe before you begin preparing food.