

# Ingredient Substitutions

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Have you ever been all set to prepare a food and suddenly discovered you were missing a certain ingredient? Sometimes it is inconvenient to go to the store to purchase the necessary ingredient. It may be more convenient to try a substitute from supplies available in your kitchen.

The following chart gives substitutes that may be used to achieve a product that is similar to the original. There are, however, a number of factors to consider when substituting ingredients. Each ingredient in a recipe has a specific function. Substitution of one ingredient for another may alter the taste, color, moisture content or texture of the product. For this reason, it is suggested that ingredient substitution be used in unexpected situations only.

If you don't have the food listed in the "ingredient" column, try one of the alternatives listed in the "substitutes" column.

Ingredient	Amount	Substitutes
Allspice	1 teaspoon	* 1/2 teaspoon cinnamon and 1/2 teaspoon ground cloves
Apple pie spice	1 teaspoon	* 1/2 teaspoon cinnamon, 1/4 teaspoon nutmeg and 1/8 teaspoon cardamom
Arrowroot starch	1 teaspoon	* 1 tablespoon flour * 1 1/2 teaspoon cornstarch
Baking powder	1 teaspoon	* 1/4 teaspoon baking soda plus 5/8 teaspoon cream of tartar * 1/4 teaspoon baking soda plus 1/2 cup sour milk or buttermilk or yogurt (decrease liquid called for in recipe by 1/2 cup) * 1/4 teaspoon baking soda plus 1/2 tablespoon vinegar or lemon juice used with sweet milk to make 1/2 cup (decrease liquid called for in recipe by 1/2 cup) * 1/4 teaspoon baking soda plus 1/4 to 1/2 cup molasses (decrease liquid in recipe by 1 to 2 tablespoons) * 1/3 teaspoon baking soda plus 1/2 teaspoon cream of tartar
Bay leaf	1 whole	* 1/4 teaspoon cracked bay leaves
Beau monde seasoning	1 teaspoon	* 1 teaspoon seasoning salt * 1/2 teaspoon table salt plus dash of

		garlic, onion and celery salts or powders
Beef stock base, instant	2 teaspoons	* 1 beef bouillon cube
Beef stock base, instant	4 teaspoons dissolved in 1 1/4 cups water	* 1 can (10 1/2 ounces) condensed, undiluted beef bouillon or consommé'
Bread crumbs, dry	1/3 cup	* 1 slice of bread
Bread crumbs, soft	3/4 cup	* 1 slice bread
Broth, beef or chicken	1 cup	* 1 bouillon cube dissolved in 1 cup boiling water * 1 teaspoon powdered broth base dissolved in 1 cup boiling water
Butter	1 cup	* 7/8 to 1 cup hydrogenated fat plus 1/2 teaspoon salt * 7/8 cup oil plus 1/2 teaspoon salt * 7/8 cup lard plus 1/2 teaspoon salt * 1 cup margarine * 7/8 cup oil
Carob powder	If recipe calls for 3 tablespoons carob powder plus 2 tablespoons water	* 1 ounce unsweetened chocolate
Catsup	1 cup	* 1 cup tomato sauce, 1/2 cup sugar and 2 tablespoons vinegar (for use in cooking)
Chicken stock base, instant	1 1/2 teaspoons	* 1 chicken bouillon cube
Chicken stock base, instant	1 tablespoon dissolved in 1 cup water	* 1 cup canned or homemade chicken broth or stock
Chili sauce	1 cup	* 1 cup tomato sauce, 1/4 cup brown sugar, 2 tablespoons vinegar, 1/4 teaspoon cinnamon, dash of ground cloves and dash of allspice
Chives, finely chopped	2 teaspoons	* 2 teaspoons finely chopped green onion tops
Chocolate chips, semisweet	1 ounce	* 1 ounce sweet cooking chocolate
Chocolate,	1-2/3 ounces	* 1 ounce unsweetened chocolate plus

semisweet		4 teaspoons sugar
Chocolate, semisweet pieces, melted	6 ounce package	* 2 squares unsweetened chocolate plus 2 tablespoons shortening and 1/2 cup sugar
Chocolate, unsweetened	1 ounce or square	* 3 tablespoons cocoa plus 1 tablespoon butter or margarine * 3 tablespoons carob powder plus 2 tablespoons water
Cocoa	1/4 cup or 4 tablespoons	* 1 ounce (square) chocolate (decrease fat called for in recipe by 1/2 tablespoon)
Coconut	1 tablespoon grated, dry	* 1 1/2 tablespoons fresh, grated
Coconut Cream	1 cup	* 1 cup cream
Coconut Milk	1 cup	* 1 cup milk
Corn Syrup	1 cup	* 1 cup sugar plus 1/4 cup liquid (use whatever liquid is called for in the recipe) * 1 cup honey
Cornstarch (for thickening)	1 tablespoon	* 2 tablespoons all-purpose flour * 4 to 6 teaspoons quick-cooking tapioca
Cracker crumbs	3/4 cup	* 1 cup bread crumbs
Cream cheese		* Part skim milk ricotta cheese or lowfat cottage cheese beaten until smooth
Cream, half-and-half	1 cup	* 7/8 cup whole milk plus 1/2 tablespoon butter or margarine * 3 tablespoons oil plus milk to equal 1 cup * 1 cup evaporated milk
Cream, heavy (36 to 40% fat)	1 cup	* 3/4 cup milk plus 1/3 cup butter or margarine (for use in cooking and baking) * 2/3 cup buttermilk plus 1/3 cup oil * Evaporated skim milk or equal parts of part-skim milk ricotta cheese and nonfat yogurt beaten until smooth (this mixture cannot be heated because of separation)
Cream, light (18 to 20% fat)	1 cup	* 1 cup undiluted evaporated milk * 14 tablespoons milk plus 3 tablespoons butter or margarine
Cream, sour (See Sour cream, cultured)	1 cup	* 3 tablespoons butter plus 7/8 cup sour milk * 7/8 cup buttermilk plus 3 tablespoons butter

Cream, whipped		<ul style="list-style-type: none"> <li>* Chill a 13 oz. can of evaporated milk for 12 hours. Add 1 teaspoon lemon juice. Whip until stiff.</li> <li>* Beat until stiff: 1/2 cup ice-cold water and 1/2 cup nonfat dry milk. Add 1/2 cup sugar, slowly, while beating. Then add 2 tablespoons lemon juice and beat until mixed well.</li> </ul>
Cream, whipping	1 cup	<ul style="list-style-type: none"> <li>* 2 tablespoons lemon juice, 2 tablespoons sugar, 1 cup evaporated milk</li> <li>* 3/4 cup milk plus 1/3 cup butter (for cooking only)</li> </ul>
Cream of tartar	1/2 teaspoon	<ul style="list-style-type: none"> <li>* 1 1/2 teaspoon lemon juice or vinegar</li> </ul>
Dill plant, fresh or dried	3 heads	<ul style="list-style-type: none"> <li>* 1 tablespoon dill seed</li> </ul>
Egg 1 whole	(3 tablespoons)	<ul style="list-style-type: none"> <li>* 3 tablespoons slightly beaten egg</li> <li>* 3 tablespoons plus 1 teaspoon frozen egg, thawed</li> <li>* 2 1/2 tablespoons sifted dry whole egg powder plus 2 1/2 tablespoons lukewarm water</li> <li>* 1/4 cup egg substitute</li> <li>* 1 egg white and 2 teaspoons oil</li> <li>* 2 egg whites</li> <li>* 2 yolks plus 1 tablespoon water (in cookies)</li> <li>* 2 yolks (in custards, cream fillings and similar mixtures)</li> </ul>
Egg substitute	1 egg	<ul style="list-style-type: none"> <li>* 2 egg whites. May add 1 to 3 teaspoons vegetable oil for each yolk omitted.</li> <li>* 1 egg white, 2 1/4 teaspoons nonfat dry milk powder, and 2 teaspoons vegetable oil (may store 1 week in refrigerator or freezer)</li> <li>* In cookies and cakes only -- use 2 tablespoons water plus 1/2 teaspoon baking powder</li> <li>* In cookie and cake recipes that call for 2 or 3 eggs -- for each egg, use 2 tablespoons flour, 1/2 tablespoon shortening, 1/2 teaspoon baking powder, 2 tablespoons liquid (use liquid called for in recipe)</li> </ul>
Egg white	1 white (2 tablespoons)	<ul style="list-style-type: none"> <li>* 2 tablespoons frozen egg white, thawed</li> <li>* 2 teaspoons sifted dry egg white powder plus 2 tablespoons lukewarm water</li> </ul>
Egg yolk	1 yolk (1 1/2 tablespoons)	<ul style="list-style-type: none"> <li>* 2 tablespoons sifted dry egg yolk powder plus 2 teaspoons water</li> <li>* 1-1/3 tablespoons frozen egg yolk, thawed</li> </ul>

Extracts	1 teaspoon	* 1/4 teaspoon oil of similar flavor
(example: mint extract)	1/4 teaspoon	* 2 drops oil of similar flavor (oils won't evaporate at high temperatures)
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Flavor-based oil	1/4 teaspoon	* 1 teaspoon extract of same flavor
(example: oil of peppermint)	2 drops	* 1/4 teaspoon extract of same flavor
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Flour, all-purpose (for thickening)	1 tablespoon	* 1/2 tablespoon cornstarch, potato starch, rice starch or arrowroot starch * 1 tablespoon granular tapioca * 2 to 3 teaspoons quick-cooking tapioca * 1 tablespoon waxy rice flour * 1 tablespoon waxy corn flour * 2 tablespoons browned flour * 1 1/2 tablespoons whole wheat flour * 1/2 tablespoon whole wheat flour plus 1/2 tablespoon all-purpose flour
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Flour, all-purpose (Note: Speciality flours added to yeast bread recipes will result in a reduced volume and a heavier product)	1 cup sifted	The following flours require more leavening than wheat flour, so add 2 1/2 teaspoons baking powder per cup of flour. An even lighter product results when buttermilk plus 1/2 teaspoon baking soda is substituted for each cup of milk in the recipe:  * 1 1/4 cups rye flour * 3/4 cup rice flour * 1 1/2 cups oat flour * 1 cup corn flour * 3/4 cup coarse cornmeal * 1 cup fine cornmeal * 5/8 cup potato starch flour * 1-1/8 cups cake flour * 1 1/2 cups bread crumbs * 1 cup rolled oats * 1 1/2 cups barley flour * 1 cup unsifted all-purpose flour minus 2 tablespoons * 1/3 cup cornmeal or soybean flour plus 2/3 cup all-purpose flour * 1/2 cup cornmeal, bran, rice flour, rye flour or whole wheat flour plus 1/2 cup all-purpose flour * Substitute whole wheat flour for 1/4 to 1/2 of white flour called for in a recipe * 1/4 cup soybean flour plus 3/4 cup all-purpose flour * 1/3 cup wheat germ plus 2/3 cup all-purpose flour
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Flour, cake	1 cup sifted	* 1 cup minus 2 tablespoons sifted all-purpose flour
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Flour, pastry	1 cup	* 7/8 cup all-purpose flour

Flour, self-rising	1 cup	* 1 cup minus 2 teaspoons all-purpose flour plus 1 1/2 teaspoons baking powder and 1/2 teaspoon salt
Flour, whole wheat	1 cup	* 1 cup white wheat flour * 1 cup graham flour
Garlic	1 clove, small	* 1/8 teaspoon garlic powder or 1/4 teaspoon instant minced garlic
Garlic salt	3/4 teaspoon	* 1 medium size clove or 1/2 teaspoon minced fresh
Gelatine, flavored	3-ounce package	* 1 tablespoon plain gelatine plus 2 cups fruit juice
Ginger	1/8 teaspoon, powdered	* 1 tablespoon candied ginger rinsed in water to remove sugar, finely cut * 1 tablespoon fresh ginger, grated
Herbs, dried	1 teaspoon	* 1 tablespoon fresh, finely cut
Herbs, fresh	1 tablespoon, finely cut	* 1 teaspoon dried herbs * 1/2 teaspoon ground herbs
Honey	1 cup	* 1 1/4 cups sugar plus 1/4 cup liquid (use liquid called for in recipe)
Horseradish	1 tablespoon, fresh	* 2 tablespoons bottled
Lemon	1 teaspoon juice 1 medium	* 1/2 teaspoon vinegar * 2 to 3 tablespoons lemon juice and 1 to 2 teaspoons rind
Lemon peel, dried	1 teaspoon	* 1 to 2 teaspoons grated fresh lemon peel * grated peel of 1 medium size lemon * 1/2 teaspoon lemon extract
Macaroni (4 cups cooked)	2 cups, uncooked	* 2 cups spaghetti, uncooked, (2 inch pieces) * 4 cups noodles, uncooked
Maple sugar	1/2 cup	* 1 cup maple syrup
Maple sugar (grated and packed)	1 tablespoon	* 1 tablespoon white granulated sugar
Marshmallows, miniature	1 cup	* 10 large
Mayonnaise (for use in salads and salad dressings)	1 cup	* 1/2 cup yogurt and 1/2 cup mayonnaise or salad dressing * 1 cup salad dressing * 1 cup sour cream * 1 cup yogurt

		* 1 cup cottage cheese pureed in a blender
Milk, buttermilk	1 cup	* 1 cup plain yogurt
Milk, buttermilk or sour	1 cup	* 1 cup minus 1 tablespoon sweet milk plus 1 tablespoon lemon juice or vinegar (allow to stand 5 to 10 minutes) * 1 cup sweet milk and 1 3/4 teaspoons cream of tartar
Milk, evaporated (whole or skim)	If recipe calls for 1/2 cup plus 1/2 cup water	* 1 cup liquid whole milk
Milk, evaporated	1 can (about 12 ounces)	* Whip until smooth: 1 cup nonfat dry milk 1 3/4 cups warm water Keep refrigerated
Milk, skim	1 cup	* 4 to 5 tablespoons nonfat dry milk powder and enough water to make one cup, or follow manufacturer's directions
	1/4 cup	* 4 teaspoons nonfat dry milk powder plus water to make 1/4 cup, or follow manufacturer's directions
	1/3 cup	* 2 tablespoons nonfat dry milk powder plus water to make 1/3 cup, or follow manufacturer's directions
Milk, sweetened condensed	1 can (about 1-1/3 cup)	* Heat the following ingredients until sugar and butter are dissolved: 1/3 cup and 2 tablespoons evaporated milk 1 cup sugar 3 tablespoons butter or margarine
	1 cup	* Heat the following ingredients until sugar and butter are dissolved: 1/3 cup evaporated milk 3/4 cup sugar 2 tablespoons butter or margarine * Add 1 cup plus 2 tablespoons dry milk powder to 1/2 cup warm water. Mix well. Add 3/4 cup sugar and stir until smooth.
Milk, sweetened condensed	To make about 1 1/4 cups in blender	* Combine 1 cup instant nonfat dry milk, 2/3 cup sugar, 1/3 cup boiling water and 3 tablespoons margarine. Blend until smooth. To thicken, let set in refrigerator for 24 hours.
Milk, whole	1 cup	* 1 cup reconstituted nonfat dry milk plus 2 1/2 teaspoons butter or margarine * 1/2 cup evaporated milk plus 1/2 cup water

		<ul style="list-style-type: none"> <li>* 1 cup buttermilk plus 1/2 teaspoon baking soda (for use in baking, decrease baking powder by 2 teaspoons)</li> <li>* 4 tablespoons whole dry milk plus 1 cup water or follow manufacturer's directions</li> <li>* 1 cup fruit juice or 1 cup potato water (in baking)</li> <li>* 1/4 cup nonfat dry milk, 7/8 cup water and 2 teaspoons butter or margarine</li> <li>* 1 cup water plus 1 teaspoons butter (in baking)</li> </ul>
Molasses	1 cup	<ul style="list-style-type: none"> <li>* 3/4 cup sugar plus 2 teaspoons baking powder (increase liquid called for in recipe by 5 tablespoons and decrease baking soda by 1/2 teaspoon)</li> <li>* 3/4 cup sugar plus 1 1/4 teaspoons cream of tartar (increase liquid called for in recipe by 5 tablespoons)</li> </ul>
Mushrooms	1 pound fresh	<ul style="list-style-type: none"> <li>* 3 ounces dried mushrooms</li> <li>* 6- or 8-ounce can</li> </ul>
Mushrooms, powdered	1 tablespoon	<ul style="list-style-type: none"> <li>* 3 tablespoons whole dried mushrooms</li> <li>* 4 ounces fresh</li> <li>* 2 ounces canned</li> </ul>
Mustard, dry	1 teaspoon	<ul style="list-style-type: none"> <li>* 1 tablespoon prepared mustard</li> <li>* 1/2 teaspoon mustard seeds</li> </ul>
Oil, flavor-based (example: oil of peppermint)		* See Flavor-Based Oil
Onion	1 small	<ul style="list-style-type: none"> <li>* 1/4 cup chopped, fresh onion</li> <li>* 1-1/3 teaspoons onion salt</li> <li>* 1 to 2 tablespoons minced onion</li> <li>* 1 teaspoon onion powder</li> </ul>
Orange	1 medium	* 6 to 8 tablespoons juice
Orange peel, dried	1 tablespoon	<ul style="list-style-type: none"> <li>* 2 to 3 tablespoons grated fresh orange peel</li> <li>* Grated peel of 1 medium-size orange</li> </ul>
	2 teaspoons	* 1 teaspoon orange extract
Orange peel, fresh	1 medium	* 2 to 3 tablespoons grated fresh orange peel
Parsley, dried	1 teaspoon	* 3 teaspoons fresh parsley, chopped
Peppers, green bell	1 tablespoon, dried	* 3 tablespoons fresh green pepper, chopped
Peppers, red bell	1 tablespoon, dried	<ul style="list-style-type: none"> <li>* 3 tablespoons fresh red bell pepper, chopped</li> <li>* 2 tablespoons pimiento, chopped</li> </ul>

Peppermint extract	1 tablespoon	* 1/4 cup fresh mint, chopped * See also Extracts
Pimiento	2 tablespoons chopped	* 1 tablespoon dried red bell peppers, rehydrated * 3 tablespoons fresh red bell pepper, chopped
Pumpkin pie	1 teaspoon	* 1/2 teaspoon cinnamon, 1/4 teaspoon ginger, 1/8 teaspoon allspice and 1/8 teaspoon nutmeg
Rennet	1 tablet	* 1 tablespoon liquid rennet
Rice	1 cup regular, uncooked  1 cup cooked	* 1 cup uncooked converted rice (3 cups cooked) * 1 cup uncooked brown rice * 1 cup uncooked wild rice * 1 cup cooked bulgur wheat * 1 cup cooked pearl barley
Rum	1/4 cup	* 1 tablespoon rum extract plus 3 tablespoons liquid (use liquid called for in recipe or water)
Shortening, melted	1 cup	* 1 cup cooking oil (cooking oil should not be substituted if recipe does not call for melted shortening)
Shortening, (used in baking)	1 cup	* 1 cup minus 2 tablespoons lard * 1-1/8 cups butter or margarine (decrease salt called for in recipe by 1/2 teaspoon)
Shrimp, fresh	1 cup cleaned, cooked	* 3/4 pound raw in shell, clean and cook * 7-ounce package frozen, peeled shrimp, cooked * 4 1/2- or 5-ounce can of shrimp
Sour cream, cultured	1 cup	* 7/8 cup sour milk or buttermilk plus 1/3 cup butter or margarine * Blend until smooth: 1/3 cup buttermilk, 1 tablespoon lemon juice and 1 cup cottage cheese * 1-1/8 cups non-fat dry milk powder, 1/2 cup warm water, and 1 tablespoon vinegar (mixture will thicken in refrigerator in a few hours) * 1 cup evaporated milk at 70 F plus 1 table-spoon vinegar (allow to stand until it clabbers) * 1 cup plain yogurt (in cooking add a tablespoon of cornstarch to each cup to prevent separating) * 3/4 cup milk, 3/4 teaspoon lemon juice and 1/3 cup butter or margarine * 3/4 cup buttermilk plus cup oil * 1 cup cottage cheese and 2 or 3 teaspoons of lemon juice, pureed in

blender

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Spearmint, extract	1 tablespoon	* 1/4 cup fresh mint, chopped * See also Extracts
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Sugar, brown	1 cup, firmly packed	* 1 cup granular sugar * 1 cup granulated sugar plus 1/4 cup molasses
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Sugar, confectioners' or powdered	1 cup	* 3/4 cup granulated sugar
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Sugar, white	1 teaspoon 1 cup	* 1/2 to 3/4 teaspoon honey or molasses * 2 cups corn syrup (reduce liquid called for in recipe by 1/4 cup. Never replace more than 1/2 of sugar called for in recipe with corn syrup.) * 1 cup brown sugar, firmly packed * 1 3/4 cups confectioners' sugar (for uses other than baking) * 1 cup molasses plus 1/2 teaspoon soda (omit baking powder or use very little. Substitute molasses for no more than half the sugar. Reduce liquid in recipe by 1/4 cup per cup of molasses.) * 3/4 cup maple syrup (Reduce liquid called for in recipe by 3 tablespoons.) * 1 cup honey (decrease liquid called for in recipe by 1/4 cup. In baked goods, add 1/2 teaspoon of baking soda for each cup of honey substituted and lower baking temperature 25 degrees. In cookie recipes using eggs and no additional liquid, increase the flour by about 2 tablespoons per cup of honey. Chill before shaping and baking. Half of the sugar in cakes, can be replaced with honey. Two-thirds of the sugar can be replaced in fruit bars, but replace no more than a third of the sugar in ginger snaps with honey. When making cakes or cookies, first mix honey with the fat or the liquid, then mix with other ingredients. If this is not done, a soggy layer may form on top of the baked product.)
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Sugar, white		Sweeteners: * Sugar Twin and Sprinkle Sweet: measure like sugar. Substitute 1 teaspoon sweetener for 1 teaspoon sugar, 1 cup sweetener for 1 cup sugar. * Equal: 1 packet = 2 teaspoons sugar * Sweet 10: 10 drops = 1 teaspoon sugar 1 tablespoon = 1/2 cup sugar
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Tapioca, granular	1 tablespoon 2 teaspoons	* 2 tablespoons pearl tapioca * 1 tablespoon flour
Tomato juice	1 cup	* 1/2 cup tomato sauce plus 1/2 cup water
Tomatoes, fresh	2 cups, chopped	* 16-ounce can
Tomato sauce	15-ounce can	* 6-ounce can tomato paste plus 1 cup water
Tomatoes, chopped	16-ounce can	* 3 fresh medium tomatoes * 16-ounce can stewed tomatoes
Tomato soup	10 3/4-ounce can	* 1 cup tomato sauce plus 1/4 cup water
Vanilla extract	1 teaspoon	* 1-inch vanilla bean split and simmered in liquid of recipe
Wine	1 cup	* 13 tablespoons water, 3 tablespoons lemon juice and 1 tablespoon sugar
Worcestershire sauce	1 teaspoon	* 1 teaspoon bottled steak sauce
Yeast, active dry	1 tablespoon	* 1 cake (6/10 ounce), compressed (2/3 ounce) * 1 packaged (1/4 ounce) active dry yeast
Yogurt, plain	1 cup	* 1 cup buttermilk * 1 cup cottage cheese blended until smooth * 1 cup sour cream

*The information given herein is for education purposes only. Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by the NDSU Extension Service is implied.*

## Measuring Up

These commonly used equivalent measures will simplify your recipe preparation.

### • General

3 teaspoons = 1 tablespoon  
 4 tablespoons = 1/4 cup  
 5 tablespoons + 1 teaspoon = 1/3 cup  
 16 tablespoons = 1 cup  
 2 cups = 1 pint

2 pints = 1 quart

### • Butter

1/2 ounce (1/8 stick) = 1 tablespoon  
1 ounce (1/4 stick) = 2 tablespoons  
2 ounces (1/2 stick) = 4 tablespoons  
4 ounces (1 stick) = 1/2 cup  
16 ounces (4 sticks) = 2 cups

### • Chocolate

12-ounce morsels = 1 cup melted chocolate  
12-ounce morsels = 2 cups whole morsels

### • Cream

1 cup heavy cream = 2 cups whipped cream

### • Eggs

8-10 whites, large = 1 cup egg whites  
12-14 yolks, large = 1 cup egg yolks

### • Flour

1 pound = 4 cups

### • Fruit

1 medium lemon = 3 tablespoons juice + 1 tablespoon grated rind  
1 medium orange = 1/3 to 1/2 cup juice + 2 tablespoons grated rind  
1 pound apples = 3 medium whole or 3 cups sliced  
1 pound bananas = 3 medium whole or 1 1/2 cups mashed

### • Nutmeats

4 1/2 ounces nuts, chopped = 1 cup

### • Popcorn

1/4 cup kernels = 8 cups popped

### • Sugar

1 pound brown sugar = 2 1/4 cups  
1 pound confectioners' = 4 1/2 cups sifted

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