

The conversion of the recipe will impact the cost of the recipe, but not necessarily the cost of the portion. In other words, if a recipe for 24 cost \$5.25 per portion, then increasing the recipe for 36 (of the same size portions) would not necessarily change that price. When properly converted and prepared, the quality of the product produced from the recipe should not vary from the original, no matter how many portions it yields.

Professional foodservice recipes have a large yield. Sometimes you have to change (or convert) a recipe if the yield is not the amount you need. Using basic math skills, it's easy to increase or decrease many recipes. Most recipes, even those for baked goods, can be doubled successfully.

Essential Skills

Formula for increasing or decreasing recipe yields

① Decide how many servings you need (or the desired yield).

② Use the following formula:

Desired yield \div Original yield = **Conversion factor**, which is the number by which to multiply the ingredients.

For example, if a chili recipe serves 8, and you need to serve 4, then $4/8$ or $4 \div 8 = 0.5$. The conversion factor is 0.5.

③ Multiply each ingredient amount by the conversion factor. This keeps all the ingredients in the same proportion to each other as they were in the original recipe. Be aware that weights and volumes are not interchangeable, so when converting a recipe, do not change volume measurement for weight.

For example, 1 cup of flour does not weigh 8 ounces.

④ As needed, convert answers to logical, measurable amounts. Think about the equipment you will use for measuring.

For example: $\frac{3}{4}$ cup flour = 1 and $\frac{1}{2}$ cup; 12 tbsp brown sugar = $\frac{3}{4}$ cup

⑤ Make any necessary adjustments to equipment, temperature, and time. The depth of food in a pan affects how fast it will cook. Use pans that are the right size for the amount of food—neither too large nor too small.

Now, if a change is needed in the portion size, then the calculation requires an additional step. Suppose the cook wants to convert the yield of 250 brownies to small brownies? If 96 big brownies equals 125 small brownies, divide 250 by 125 (the desired yield divided by actual yield)—to get a conversion factor of 2.

The conversion of a recipe to produce more or less product can affect the equipment needed to produce the recipe. The adjustments will include measuring equipment and cooking/service equipment. For example, if a recipe that produces 24 portions and requires the use of 1 hotel pan to do final pan-up of the product is converted to produce 48 portions, 2 hotel pans will be needed. Another example is a recipe that calls for 1 tablespoon of an ingredient. If the recipe is increased by a multiplier of 16, then the item measure would be 1 cup. The cook needs a cup measure rather than a tablespoon measure. The failure to take equipment changes into consideration when converting a recipe can cause problems in preparation. Keep in mind that larger equipment might be needed for mixing and cooking larger amounts of food. Cooking times will often need adjustment as well.

Measuring

The term **measurement** refers to how much of something is being used in a recipe. Ingredients can be measured in several ways. Most ingredients are measured by volume. **Volume** is the amount of space an ingredient takes up. A salad recipe might list 1 cup cooked pasta or ½ teaspoon of pepper. Some ingredients are measured by weight or heaviness, such as 1 pound of fish filets or 2 ounces of butter. Other ingredients may be measured by the count, or number, of items, such as one medium banana or three egg whites. No matter how an ingredient is measured, careful, accurate measurement is necessary for quality and quantity control.

Measuring by Volume

Volume is not as accurate a measure as weight, particularly for solids because the character of the item creates major variations in the amount of space an item occupies. For example, 1 cup of water weighs 8 ounces, but 1 cup of flour weighs approximately 3.5-4 ounces, depending on whether or not it has been “packed.” Volume is often used for amounts of dry ingredients such as herbs and spices that are too small to easily and accurately weigh.

Volume measurement is best used for liquids, but remember that even liquids can vary in weight in relation to volume. Always remember that the term fluid ounce is a volume measurement, not a weight. Only with water or a water-like substance is 1 cup (volume measurement) equal to 8 fluid ounces (volume measurement) and to 8 ounces (weight measurement). Examples of water-like liquids in the kitchen include milk, oils, thin liquids such as vinegar, and melted butter.

Dry ingredients are usually measured by leveling them off evenly at the rim of the spoon or cup using a straight-edged utensil. Sometimes, however, a recipe calls for a heaping measure: scoop up the ingredient with a utensil, but do not level it off. A heaping measure can give almost twice the amount of a leveled-off measure. Figure 4.13 shows the proper measure of dry ingredients.

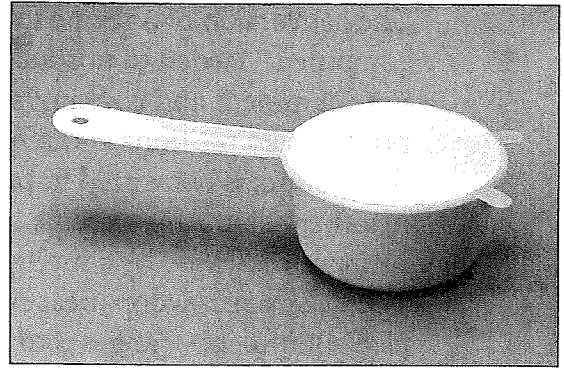


Figure 4.13: To measure dry ingredients, take the straight edge of a knife and level off the ingredient.

Dry ingredient measuring tools usually come in a set of several sizes. A

typical customary set of measuring cups includes $\frac{1}{4}$ cup, $\frac{1}{3}$ cup, $\frac{1}{2}$ cup, and 1 cup measures. A metric set includes 50 milliliter, 125 milliliter, and 250 milliliter measures. Even smaller amounts of dry ingredients can be measured as a dash or a pinch—the amount that can be held between the thumb and forefinger. Herbs and spices are often measured this way.

Essential Skills

Measuring Dry Ingredients

- 1 Fill the cup with the ingredient. Some ingredients, such as flour and sugar, must be spooned into the cup lightly. Other ingredients, like brown sugar, must be packed down, but only if specified in the recipe.
- 2 Level off the top of the cup using a straight-edge spatula. See Figure 4.14.

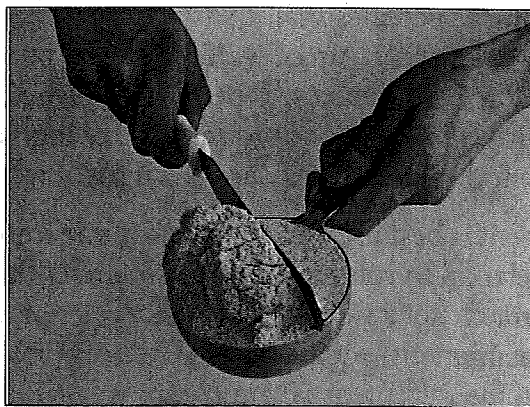


Figure 4.14: Step 2—Use a straight-edge spatula to measure off dry ingredients.

- 3 Pour the ingredients into the mixture. If needed, use a rubber scraper to make sure all of the ingredient has been emptied out of the cup.
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Liquid measuring cups are see-through and have measurement markings on the side. They are typically marked in fractions of a cup, fluid ounces, and milliliters. Customary sizes for measuring cups are 1 cup, 1 pint, 1 quart, and 1 gallon. Metric cups usually come in 250 milliliter and 500 milliliter sizes.

Measuring spoons generally come in a set of four or five. Most customary sets include these sizes: $\frac{1}{4}$ teaspoon, $\frac{1}{2}$ teaspoon, 1 teaspoon, and 1 tablespoon. Metric sets include 1 milliliter, 2 milliliter, 5 milliliter, 15 milliliter, and 25 milliliter measures.

Essential Skills

Measuring Liquids

When measuring liquid ingredients:

- ① Set the measuring cup on a level surface.
- ② Carefully pour the liquid into the cup.
- ③ Bend down to check the measurement at eye level for an accurate reading. See Figure 4.15.

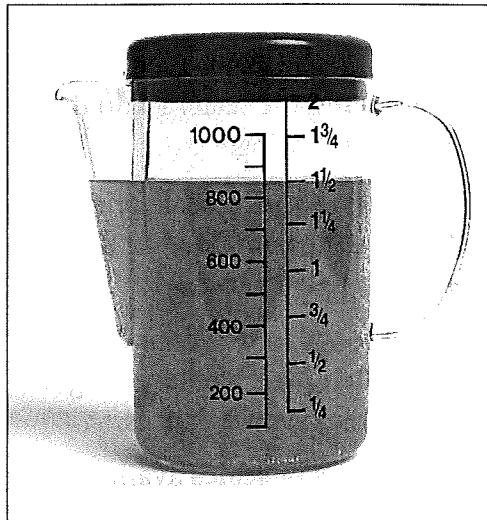


Figure 4.15: Step 3—Check measurement at eye level.

- ④ Add more liquid, or pour off excess, until the top of the liquid is at the desired measurement mark.
 - ⑤ Pour the ingredient into the mixing container. If needed, use a rubber scraper to empty the cup completely.
 - ⑥ For small amounts of liquids, use measuring spoons.
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