

Nutrition Facts	
Serving Size 1/2 cup (125g)	
Serving Per Container 3.5	
Amount Per Serving	
Calories 130	Calories from Fat 0
% Daily Value*	
Total Fat 0g	0%
Saturated Fat 0g	
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 490mg	20%
Total Carbohydrate 24g	8%
Dietary Fiber 7g	
Sugars 0g	
Protein 9g	16%
Vitamin A	
Vitamin C	
Calcium	
Iron	
* Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:	
Calories: 2,000 2,500	
Total Fat	Less than 65g 80g
Sat Fat	Less than 20g 25g
Cholesterol	Less than 300mg 300mg
Sodium	Less than 2,400mg 2,400mg
Total Carbohydrate	300g 375g
Dietary Fiber	25g 30g

Food and Fitness Virtual Workshop

Activity Four:
Serving Sizes

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Virtual Workshop: Food and Fitness (Activity Four) – Serving Sizes

Activity Four: Serving Sizes, of the instructional unit, Food and Fitness, helps students learn how to estimate portions and use serving size information provided on Nutrition Facts labels.

Science concepts covered in this activity include the following.

- Objects have observable properties that can be measured.
- Serving sizes on food labels can help guide food choices.

The complete Food and Fitness Activities Guide for Teachers may be downloaded as a PDF file from the Teacher Resources menu on BioEd Online.

<<http://www.bioedonline.org/resources/nsbri.cfm>>

Viewing this presentation fulfills part of the requirements for completing the Virtual Workshop on Energy, Food and Nutrition (“Food and Fitness”), offered for professional development contact hours on BioEd Online.

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Center for Educational Outreach, Baylor College of Medicine: <<http://www.ccit.bcm.tmc.edu/ceo/>>

National Space Biomedical Research Institute: <www.nsbri.org>

National Aeronautics and Space Administration: <<http://www.nasa.gov>>

Typical portions often contain multiple “servings”

PORTIONS VERSUS SERVINGS*		
Food Item	Normal Portion	No. of Servings Represented
Bagel	1 whole (4 oz)	4
Muffin	1 large (5 oz)	5
Cinnamon bun	1 large (3 oz)	3
Flour tortilla	1 burrito-sized (10 in.)	3
Tortilla chips	1 individual bag (9–13 chips)	2
Popcorn	Movie theatre medium (16 cups)	8
Baked potato	One large (3–4 1/4 in. diameter)	4
French fries	Medium order (5 oz)	4
Fried chicken	3 pieces (7–8 oz)	3
Steak	1 large (13 oz)	5
Sliced ham or roast beef	Amount in typical deli sandwich (5 oz)	2

* Portions of many common foods consist of more than one "serving size."



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Typical portions often contain multiple “servings”

Portion sizes of convenience and fast foods steadily have increased in the United States over the past thirty years (Nielsen and Popkin, 2003). In many cases, the portions served and eaten actually contain several “serving sizes,” as defined by Food Pyramid or even the Nutrition Facts labels on foods. For example, a large baked potato corresponds to three servings of carbohydrates. A large bagel delivers the equivalent of four bread servings.

Sometimes, the serving sizes listed on “Nutrition Facts” labels of food packages are different than the serving sizes listed by other guides, such as the USDA Food Pyramid. This differences arise because information on the Food Pyramid is designed to help people meet daily nutrient recommendations by providing relatively few, easy-to-remember serving sizes for each of the food groups. Nutrition Facts labels, on the other hand, provide detailed nutritional information that enables consumers to compare similar foods and make selections based on nutritional content. Ideally, the two sources of information should be used together to make appropriate food choices.

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References:

Nielsen, S.J. & Popkin, B.M. (2003). Patterns and Trends in **Food Portion Sizes, 1977-1998**. *JAMA*, 289:450-453. Retrieved 07-06-2004 from

http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12533124

Sinclair, K.B., Pereira, M.A., Garcia-Lago, E., Feldman, H.A., & Ludwig, D.S. (2004). Compensation for Energy Intake From Fast Food Among Overweight and Lean Adolescents. *JAMA*, 291:2828-2833.

Retrieved 07-06-2004 from

http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=15199032

USDA Center for Nutrition Policy and Promotion. (2000). Serving Sizes in the Food Guide Pyramid and on the Nutrition Facts Label: What's Different and Why? *Nutrition Insights* 22 (December).

Retrieved 07-06-2004 from <http://www.nal.usda.gov/fnic/Fpyr/pyramid.html>

What is a serving size?

- For each food listed below, estimate how much (in cups) makes up one serving size and record your estimates.
 - Peas
 - Popcorn
 - Oat cereal
 - Soft drink
- Measure out the amounts you estimated as serving sizes for each food.
- Look at the amounts you measured. Are they more or less than you expected?

Equivalent Measures

3 teaspoons = 1 tablespoon

16 tablespoons = 1 cup

8 ounces (fluid) = 1 cup

8 ounces (dry) = 1/2 lb



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What is a serving size?

Food labels and other guides often use “serving size” to describe a recommended single portion of a food. Serving sizes are different for various kinds of foods (meats, fruits and vegetables, etc.), liquid and solid foods, and cooked versus raw foods. In many cases, the amount specified as a serving size for a particular food is smaller than the amount typically eaten.

To help students learn to estimate appropriate serving sizes, challenge groups of students to predict appropriate serving sizes of a vegetable, snack food, cereal and liquid, and to record their predictions. Next, have students actually measure out the quantities that they predicted. You may need to explain that food portions in the US typically are measured in “cups.” Show students examples of measuring cups for liquid and solid foods.

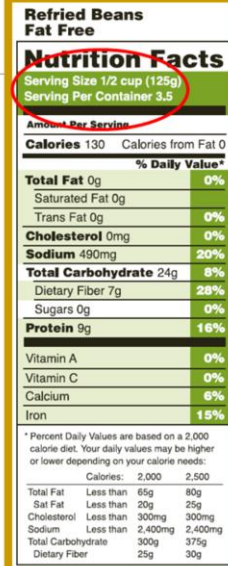
As an extension to this activity, have students investigate the metric equivalents of cups for liquids (liters) and solids (grams).

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Examine the Nutrition Facts Labels

- Find the serving size recommendations for each of the sample foods.
- Measure out one serving size of each food, based on the Nutrition Facts labels.
- Compare the serving size of each food, based on the Nutrition Facts labels to your original serving size estimates.
- Are there any differences between the two sets of serving sizes?



Amount Per Serving	
Calories 130	Calories from Fat 0
% Daily Value*	
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Trans Fat 0g	0%
Cholesterol 0mg	0%
Sodium 490mg	20%
Total Carbohydrate 24g	8%
Dietary Fiber 7g	28%
Sugars 0g	0%
Protein 9g	18%
Vitamin A	0%
Vitamin C	0%
Calcium	8%
Iron	15%

* Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories: 2,000	2,500
Total Fat	Less than 65g	80g
Sat Fat	Less than 20g	25g
Cholesterol	Less than 300mg	300mg
Sodium	Less than 2,400mg	2,400mg
Total Carbohydrate	300g	375g
Dietary Fiber	25g	30g



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Examine the Nutrition Facts Labels

Nutrition Facts labels on packaged foods can help consumers make better food choices. A Nutrition Facts label lists the serving size of the food and the number of servings per container. In addition, the label reports the amounts of nutrients present in grams and as a percentage of Daily Values for a 2,000 calorie diet. According to the USDA Center for Nutrition Policy and Promotion, Nutrition Facts label serving sizes are more or less based on amounts customarily eaten at one time, and do not necessarily correspond to serving sizes recommended by the Food Pyramid.

Serving Sizes on labels are reported in one of three ways. For bulk materials, such as cereals and flour, the labels use common household terms, such as cup, tablespoon, teaspoon or fluid ounce. For products that usually are divided into pieces, such as cake or pizza, the serving size is a fractional amount of the whole (for example, 1/4 pizza). Products that come as units, such as eggs, cookies or sliced products, are listed as the number of whole units that closely approximates a reference amount. For example, if a cookie has a reference amount of 30 grams, the serving size on a package of cookies that weigh about 30 grams each would list a serving size as “one cookie (30 grams).”

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