

# Food Labels

PH2.3: Analyze a food label to evaluate nutrition information



**GUESS THE CALORIES:** Answer each of the questions below with your best estimates.

How many calories are in...

1. an apple? \_\_\_\_\_
2. a slice of pizza? \_\_\_\_\_
3. a scoop of ice cream? \_\_\_\_\_
4. a cup of broccoli? \_\_\_\_\_
5. a bagel? \_\_\_\_\_

How many calories does your body use when you...

6. run a mile? \_\_\_\_\_
7. walk a mile? \_\_\_\_\_
8. laugh? \_\_\_\_\_

The average person should intake \_\_\_\_\_ calories everyday to maintain their current weight.



Compare your estimates with a partner. For which questions were your estimates furthest apart?



Today we will dissect food labels, like the one pictured here. We will spend time analyzing four different components of the food label. For each of the components below, draw a line connecting it to its location on the food label:

- **1. Serving size**
- **2. Calories**
- **3. Percent Daily Values**
- **4. Ingredients**

<b>Nutrition Facts</b>	Amount/serving	%DV*	Amount/serving	%DV*
Serv. Size 1 cup (249g)	<b>Total Fat</b> 12g	<b>18%</b>	<b>Sodium</b> 940mg	<b>39%</b>
Servings About 2	Sat. Fat 6g	<b>30%</b>	<b>Total Carb.</b> 24g	<b>8%</b>
<b>Calories</b> 250	Polyunsat. Fat 1.5g		Dietary Fiber 1g	<b>4%</b>
Fat Cal. 110	Monounsat. Fat 2.5g		Sugars 1g	
*Percent Daily Values (DV) are based on a 2,000 calorie diet.	<b>Cholest.</b> 60mg	<b>20%</b>	<b>Protein</b> 10g	<b>20%</b>
	Vitamin A 0% • Vitamin C 0% • Calcium 6% • Iron 8%			
<b>INGREDIENTS:</b> WATER, CHICKEN STOCK, ENRICHED PASTA (SEMOLINA WHEAT FLOUR, EGG WHITE SOLIDS, NIACIN, IRON, THIAMINE MONONITRATE [VITAMIN B1], RIBOFLAVIN [VITAMIN B2] AND FOLIC ACID), CREAM (DERIVED FROM MILK), CHICKEN, CONTAINS LESS THAN 2% OF: CHEESES (GRANULAR, PARMESAN AND ROMANO PASTE (PASTEURIZED COW'S MILK, CULTURES, SALT, ENZYMES), WATER, SALT, LACTIC ACID, CITRIC ACID AND DISODIUM PHOSPHATE), BUTTER (PASTEURIZED SWEET CREAM (DERIVED FROM MILK) AND SALT), MODIFIED CORN STARCH, SALT, WHOLE EGG SOLIDS, SUGAR, BATEM, RICE STARCH, GARLIC, SPICE, XANTHAN GUM, CHEESE FLAVOR, (PARTIALLY HYDROGENATED SOYBEAN OIL, FLAVORINGS AND SMOKE FLAVORING), MUSTARD FLOUR, ISOLATED SOY PROTEIN AND SODIUM PHOSPHATE.				

**FOOD LABEL PREVIEW:**

Before we begin, let's take a quick tour of the food label.

Note: On this label, there is no list of ingredients. Often, the ingredients list is located on a separate part of the food label.

Start Here →

Check Calories

Limit these Nutrients

Get Enough of these Nutrients

Footnote

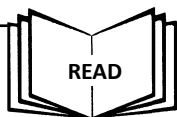
**Nutrition Facts**

Serving Size 1 cup (228g)	
Servings Per Container 2	
<b>Amount Per Serving</b>	
<b>Calories</b> 250	Calories from Fat 110
<b>% Daily Value*</b>	
<b>Total Fat</b> 12g	18%
Saturated Fat 3g	15%
Trans Fat 3g	
<b>Cholesterol</b> 30mg	10%
<b>Sodium</b> 470mg	20%
<b>Potassium</b> 700mg	20%
<b>Total Carbohydrate</b> 31g	10%
Dietary Fiber 0g	0%
Sugars 5g	
<b>Protein</b> 5g	
Vitamin A	4%
Vitamin C	2%
Calcium	20%
Iron	4%
* 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

Quick Guide to % DV

• 5% or less is Low

• 20% or more is High



**1. Serving Size**

A **portion** is the amount of food that you choose to eat for a meal or snack. It can be big or small—you decide. A **serving** is a measured amount of food or drink, such as one slice of bread or one cup (eight ounces) of milk.

Many foods that come as a **single portion** actually contain **multiple servings**. The Nutrition Facts label on packaged foods—on the backs of cans, sides of boxes, etc.— tells you the number of servings in the container.

For example, look at the label of a 20-ounce soda (usually consumed as one portion). It has 2.5 servings in it. A 3-ounce bag of chips, which some would consider a single portion, contains 3 servings.

**SERVING SIZE CARD:**

Cut out and fold on the dotted line. Laminate for longtime use.

<p><b>1 Serving Looks Like ...</b></p> <p><b>GRAIN PRODUCTS</b></p> <p>1 cup of cereal flakes = fist</p> <p>1 pancake = compact disc</p> <p>½ cup of cooked rice, pasta, or potato = ½ baseball</p> <p>1 slice of bread = cassette tape</p> <p>1 piece of cornbread = bar of soap</p>	<p><b>1 Serving Looks Like ...</b></p> <p><b>VEGETABLES AND FRUIT</b></p> <p>1 cup of salad greens = baseball</p> <p>1 baked potato = fist</p> <p>1 med. fruit = baseball</p> <p>½ cup of fresh fruit = ½ baseball</p> <p>¼ cup of raisins = large egg</p>
<p><b>1 Serving Looks Like ...</b></p> <p><b>DAIRY AND CHEESE</b></p> <p>1½ oz. cheese = 4 stacked dice or 2 cheese slices</p> <p>½ cup of ice cream = ½ baseball</p> <p><b>FATS</b></p> <p>1 tsp. margarine or spreads = 1 dice</p>	<p><b>1 Serving Looks Like ...</b></p> <p><b>MEAT AND ALTERNATIVES</b></p> <p>3 oz. meat, fish, and poultry = deck of cards</p> <p>3 oz. grilled/baked fish = checkbook</p> <p>2 Tbsp. peanut butter = ping pong ball</p>

Source: nhlbi.nih.gov



Use the chart below to answer the questions that follow:

Item	Serving Size	Size of	Meal portion (if you don't snack)	Bonus
<b>Grains: 6-11 servings per day. Choose whole grains!</b>				
Whole Cooked Grains (brown rice, quinoa, barley)	1/2 cup	Billiard Ball	Up to 1 c. (size of your fist)	Organic
Dry Cereal (shredded oats or wheat, flakes)	1/2 cup	Billiard Ball	Up to 1 c. (size of your fist)	Organic, no sweetener
Bread (whole wheat)	1 oz. (1 small slice, 1/2 bagel, 1/2 bun)	Index card	2 small slices bread, 1 med. bagel, 1 bun	Organic
<b>Fruits and Vegetables: 5-9 servings per day</b>				
Raw fruit (or canned/frozen)	1/2 cup	Billiard Ball	Size of your fist	Organic, no spraying, pesticide-free, integrated pest management
Dried fruit (apricots, raisins)	1/4 cup	Egg	Egg	
Raw vegetables	1 cup	Your fist	Both your fists	
Cooked veggies	1/2 cup	Billiard Ball	Size of your fist	
Juice	6 oz.	Hockey puck	Hockey puck	100% juice
<b>Protein: 2-3 servings per day</b>				
Meat & Tofu (cooked beef, poultry, fish, tofu)	3 oz.	Deck of cards	Deck of cards	Grass-fed, hormone free
Beans (lentils, legumes)	1/2 cup	Billiard Ball	Size of your fist	Organic
Nuts & Seeds (nut butters)	2 Tablespoons	Billiard Ball	Billiard Ball	Organic
<b>Dairy: 2-3 servings per day</b>				
Cheese	1 oz.	A pair of dice	A pair of dice	Organic, grass-fed, hormone free
Milk (milk, yogurt, kefir)	1 cup	Baseball	Baseball	

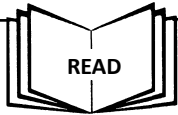
1. What is the size of 1 serving of dry cereal? \_\_\_\_\_
2. What is the size of 1 serving of bread? \_\_\_\_\_ About how many servings of bread are in a typical sandwich? \_\_\_\_\_
3. How much is 1 serving of raw fruit? \_\_\_\_\_
4. What is the size of 1 serving of juice? \_\_\_\_\_
5. How much is 1 serving of raw vegetables? \_\_\_\_\_ How much is 1 serving of cooked vegetables? \_\_\_\_\_ Why do you think those serving sizes are different? \_\_\_\_\_
6. What is the size of 1 serving of meat? \_\_\_\_\_ How many servings of meat are in a typical hamburger? \_\_\_\_\_
7. What is the maximum amount of milk a person should drink in 1 day, in cups? \_\_\_\_\_
8. What is the maximum amount of nuts a person should eat in 1 day, in tablespoons? \_\_\_\_\_

**DISCUSS**

What was most surprising to you about the true nature of serving sizes?

Do you follow these serving sizes? Why/why not? Which food was most surprising to you?

Why are the objects above given as examples of serving sizes?



## 2. Calories

The energy stored in food is measured in terms of calories. Technically, 1 calorie is the amount of energy required to raise the temperature of 1 gram of water 1 degree centigrade. The calorie measure used commonly to discuss the energy content of food is actually a kilocalorie or 1000 real calories. This is the amount of energy required to raise 1 kilogram of water (about 2.2 pounds) 1 degree centigrade.

Different foods contain different amounts of energy -- which is why a small piece of chocolate can have many more calories than a similarly sized piece of lettuce. However, since calories are a measure of energy, there cannot be, as some diet books claim, different types of calories. A fat calorie has the same amount of energy as a protein or carbohydrate calorie.

A person's caloric need is determined using a variety of mathematical equations. Age, height, current weight, and desired weight are taken into account. Generally, people think of the average adult needing approximately 2,000 calories per day. However, since so many other factors influence this number, we use the chart below:

Source: <http://www.nytimes.com/health/guides/nutrition/diet-calories/>

Estimated amounts of calories needed to maintain energy balance for various gender and age groups at three different levels of physical activity. The estimates are rounded to the nearest 200 calories and were determined using the Institute of Medicine equation.

Gender	Age (years)	Sedentary <sup>b</sup>	Moderately Active <sup>c</sup>	Active <sup>d</sup>
Child	2-3	1,000	1,000-1,400	1,000-1,400
Female	4-8	1,200	1,400-1,600	1,400-1,800
	9-13	1,600	1,600-2,000	1,800-2,200
	14-18	1,800	2,000	2,400
	19-30	2,000	2,000-2,200	2,400
	31-50	1,800	2,000	2,200
Male	51+	1,600	1,800	2,000-2,200
	4-8	1,400	1,400-1,600	1,600-2,000
	9-13	1,800	1,800-2,200	2,000-2,600
	14-18	2,200	2,400-2,800	2,800-3,200
	19-30	2,400	2,600-2,800	3,000
	31-50	2,200	2,400-2,600	2,800-3,000
	51+	2,000	2,200-2,400	2,400-2,800

<sup>a</sup> These levels are based on Estimated Energy Requirements (EER) from the Institute of Medicine Dietary Reference Intakes macronutrients report, 2002, calculated by gender, age, and activity level for reference-sized individuals. "Reference size," as determined by IOM, is based on median height and weight for ages up to age 18 years of age and median height and weight for that height to give a BMI of 21.5 for adult females and 22.5 for adult males.

<sup>b</sup> Sedentary means a lifestyle that includes only the light physical activity associated with typical day-to-day life.

<sup>c</sup> Moderately active means a lifestyle that includes physical activity equivalent to walking about 1.5 to 3 miles per day at 3 to 4 miles per hour, in addition to the light physical activity associated with typical day-to-day life

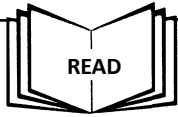
<sup>d</sup> Active means a lifestyle that includes physical activity equivalent to walking more than 3 miles per day at 3 to 4 miles per hour, in addition to the light physical activity associated with typical day-to-day life.



Use the chart to determine how many calories you need to maintain energy balance:

I am a \_\_\_\_ year old \_\_\_\_ (gender) who is \_\_\_\_ (activity level) so I need approximately \_\_\_\_ calories per day.





### 3. Percent Daily Values

The Percent Daily Value on the Nutrition Facts label is a guide to the nutrients in one serving of food. For example, if the label lists 15 percent for calcium, it means that one serving provides 15 percent of the calcium you need each day.

The Percent Daily Values are based on a 2,000-calorie diet for healthy adults. Even if your diet is higher or lower in calories, you can still use the Percent Daily Value as a guide. For example, the Percent Daily Value can help you determine whether a food is high or low in specific nutrients:

- 1 If a food has 5 percent or less of a nutrient, it's considered to be low in that nutrient.
- 2 If it has 20 percent or more, it's considered to be high in that nutrient.

Note that the Food and Drug Administration has not set a Daily Value for trans fat, and health experts recommend avoiding trans fat to lower your risk of cardiovascular disease. Similarly, there is no established Daily Value for sugar.

To get the most benefit from Percent Daily Values, use them to choose foods high in vitamins, minerals and fiber — and to limit foods high in fat, cholesterol and sodium.

Source: Mayo Clinic (Katherine Zeratsky, R.D., L.D.)



### 4. Ingredients

Answer the question using the two ingredients lists below:

1. What products do you think these ingredient lists are for?
2. What ingredients are present in these products in the largest quantity?
3. Are there any ingredients that you've never seen in real life before? List them here:
4. Would you recommend either of these products to a friend who is trying to maintain a nutritious diet? Why/why not?
5. Which of these products do you think is the healthier choice? Why?
6. Where might you find nutrition information for foods without labels (produce, fast foods)?

**Product #1:**



**Product #2:**





You have learned a lot about food labels. Now put your knowledge to practice!

1. Which of the snack choices is the best source of Vitamin C?
2. Which of the snacks would you choose to help regulate your digestion? Why?
3. Which of the snacks would provide you with the 2<sup>nd</sup> highest amount of energy for working out? Why?
4. Which of the snacks would provide with the most muscle building power? Why?
5. Order the snacks from least likely to give you high blood pressure, to most likely to give you high blood pressure.
6. Which of the snacks would you recommend to a friend who is trying to adhere to a nutritious diet? Why?

**Snack #1: Flamin'Hot Cheetos**

Nutrition Facts	
Serving Size: 1	
Amount Per Serving	
Calories 130	Calories from Fat 81
% Daily Value*	
Total Fat 9g	14%
Saturated Fat 2g	8%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 330mg	14%
Total Carbohydrate 11g	4%
Dietary Fiber 3g	12%
Sugars 1g	
Protein 3g	6%
Calcium	
* 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
*Calories per gram: Fat 9 • Carbohydrate 4 • Protein 4	

**Snack #3: Apple**

Nutrition Facts	
Serving Size 1 large apple (242g / 8 oz.)	
Amount Per Serving	
Calories 130	Calories from Fat 0
% Daily Value**	
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Potassium 260mg	7%
Total Carbohydrate 34g	11%
Dietary Fiber 5g	20%
Sugars 25g	
Protein 1g	
Vitamin A 2% • Vitamin C 8%	
Calcium 2% • Iron 2%	
* 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 per gram: Fat 9 • Carbohydrate 4 • Protein 4	

**Snack #2: Chewy Granola Bar**

Nutrition Facts	
Serving Size 1 Bar (24g) Servings Per Container 24	
Amount Per Serving	
Calories 90	Calories from Fat 25
% Daily Value*	
Total Fat 2.5g	4%
Saturated Fat 1.5g	8%
Trans Fat 0g	
Cholesterol 5mg	2%
Sodium 60mg	3%
Total Carbohydrate 16g	5%
Dietary Fiber 0g	0%
Sugars 11g	
Protein 1g	
Vitamin A 4% • Vitamin C 0%	
Calcium 2% • Iron 2%	
*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
Saturated 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
Calories per gram: Fat 9 • Carbohydrate 4 • Protein 4	



Answer the questions below to analyze the following three food labels:

Nutrition Facts	
Serving Size 1/2 cup (about 82g)	
Servings Per Container 8	
Amount Per Serving	
<b>Calories 200</b>	<b>Calories from Fat 130</b>
% Daily Value*	
<b>Total Fat 14g</b>	<b>22%</b>
Saturated Fat 9g	<b>45%</b>
Trans Fat 0g	
<b>Cholesterol 55mg</b>	<b>18%</b>
<b>Sodium 40mg</b>	<b>2%</b>
<b>Total Carbohydrate 17g</b>	<b>6%</b>
Dietary Fiber 1g	<b>4%</b>
Sugars 14g	
Protein 3g	
Vitamin A 10%	Vitamin C 0%
Calcium 10%	Iron 6%
*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
Saturated Fat	Less than 20g    25g
Cholesterol	Less than 300mg    300 mg
Sodium	Less than 2,400mg    2,400mg
Total Carbohydrate	300g    375g
Dietary Fiber	25g    30g
Calories per gram: Fat 9 • Carbohydrate 4 • Protein 4	

**Label #1**

Nutrition Facts	
Serving Size 1 cup	
Servings Per Container 9	
Amount Per Serving	
<b>Calories 110</b>	<b>Calories from Fat 15</b>
% Daily Value*	
<b>Total Fat 2g</b>	<b>3%</b>
Saturated Fat 0g	<b>0%</b>
Polyunsaturated Fat 0.5g	
Monounsaturated Fat 0.5g	
<b>Cholesterol 0 mg</b>	<b>0%</b>
<b>Potassium 95mg</b>	<b>3%</b>
<b>Sodium 280 mg</b>	<b>12%</b>
<b>Total Carbohydrate 22g</b>	<b>7%</b>
Dietary Fiber 3g	<b>11%</b>
Soluble Fiber 1g	
Insoluble Fiber 2g	
Sugars 1g	
Protein 3g	
Vitamin A 10%	Vitamin C 10%
Calcium 4%	Iron 45%
* Percent Daily Values are based on a 2,000 calorie diet. Your 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
Calories per gram: Fat 9 • Carbohydrate 4 • Protein 4	

**Label #2**

Nutrition Facts	
Serving Size 1 piece (219g)	
Servings Per Container 6	
Amount Per Serving	
<b>Calories 520</b>	<b>Calories from Fat 240</b>
% Daily Value*	
<b>Total Fat 27g</b>	<b>41%</b>
Saturated Fat 12g	<b>61%</b>
<b>Cholesterol 255mg</b>	<b>86%</b>
<b>Sodium 1110mg</b>	<b>46%</b>
<b>Total Carbohydrate 29g</b>	<b>10%</b>
Dietary Fiber 1g	<b>5%</b>
Sugars 1g	
Protein 39g	
Vitamin A 20%	Vitamin C 4%
Calcium 15%	Iron 25%
*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
Saturated 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
Calories per gram: Fat 9 • Carbohydrate 4 • Protein 4	

**Label #3**

- For labels 1 and 2, how many cups are equal to one serving? Label 1: \_\_\_\_\_ Label 2: \_\_\_\_\_
- How many calories would be in 1 cup of food according to label 1? \_\_\_\_\_
- According to each label, one serving provides what percent of recommended total fat intake for a person eating a 2,000 calorie diet? Label 1: \_\_\_\_\_ Label 2: \_\_\_\_\_ Label 3: \_\_\_\_\_
- Which type of food (#1, #2, or #3) provides the highest percent of daily value for each of the following?
  - Vitamin A \_\_\_\_\_
  - Fiber \_\_\_\_\_
  - Cholesterol \_\_\_\_\_
  - Sugar \_\_\_\_\_
- Order the foods from lowest to highest, respectively. (Note: List the foods as Label 1, 2, or 3)
 

Total Fat: \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

Total Carb: \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

Sugar: \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

Sodium: \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_
- Keeping in mind all of the information on the food label, order the foods from healthiest to least healthy. (Note: List the foods as Label 1, 2, or 3) \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

**NOW GO FIND YOUR FAVORITE FOOD AND TAKE A PEEK AT THE LABEL. SEE WHAT YOU CAN LEARN!**