



Using Food Labels

Activity from *The Science of Food Teacher's Guide: From Ecosystems to Nutrition*
and for *The Mysterious Marching Vegetables*

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BioEdSM

Teacher Resources from the
Center for Educational Outreach at
Baylor College of Medicine

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The activities described in this book are intended for school-age children under direct supervision of adults. The authors and Baylor College of Medicine cannot be responsible for any accidents or injuries that may result from conduct of the activities, from not specifically following directions, or from ignoring cautions contained in the text.

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foodsafety.gov

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fws.gov/digitalmedia.fws.gov

Food Safety and Nutrition

Environment and Health Basics



Food affects health and well-being in two important ways. First, we require appropriate amounts of different kinds of foods to supply the energy and nutrients we need for daily activities and for growth and maintenance of our bodies. Second, food can contain contaminants that can make us sick.

Carbohydrates, fats and proteins are our main sources of energy. Our bodies also need protein to maintain muscles and carry out many functions inside cells. Small amounts of



vitamins and minerals also are necessary.

Food becomes available for use by the body through the process of digestion. Digestion breaks down large food molecules into smaller ones that can be transported and used by the body.



Many Americans eat too much refined sugar and unhealthy fats. Examples of foods with little nutritional value, or with too many added calories, are soft drinks, chips, greasy fried foods, candy and snack cakes. A diet that has a lot of “junk” foods is harmful

in two ways. First, it does not provide all of the vitamins, minerals and other substances needed for growth and health. Second, a diet with many sweets and fatty foods often delivers too many calories. When a person eats more calories than he or she uses up through movement and exercise, the body stores the excess energy as fat. Excess body weight can contribute to a number of serious health problems, such as type 2 diabetes, heart disease and stroke.

How foods are grown and prepared also is important. Plants and animals can take in small amounts of pollutants (harmful chemicals) from water, food or soil. These pollutants can accumulate in the bodies of other living organisms that eat the smaller plants or animals—a process known as bioaccumulation. Food also can be spoiled by bacteria. Most bacteria that cause food-related illnesses are spread because hands and food preparation areas are not kept clean or because food is not kept at the proper temperature.



Simple actions, such as washing hands before eating or preparing food, help to reduce the possibility of spreading bacteria or other harmful substances to food.

CHILDREN'S ENVIRONMENTAL HEALTH

Children are particularly susceptible to contaminants in food and in the environment. Because their bodies are still growing and because they eat more fruits and vegetables (which may contain chemical residues) relative to their body weights, children are more vulnerable to the harmful effects of substances such as lead and pesticides. However, many researchers believe that a healthy diet, which provides recommended amounts of vitamins and minerals, may help protect children from potentially harmful chemicals.

AVOIDING SUGARY DRINKS

Many soft drinks have around 10 teaspoons of sugar in a 12-ounce can. These drinks, which have little nutritional value, contribute to the nationwide epidemic of overweight and obesity.

Using Food Labels

Environment and Health



Beginning in 1994, the US Government began requiring manufacturers to put information about nutritional value on food labels. This information helps people make better choices about which foods to buy and eat.

All food labels must present the same basic information in a

standard format. This information includes, at minimum, the amount per serving of saturated fat, cholesterol, dietary fiber, and other nutrients known to be important for health. Labels also provide nutrient reference values, expressed as “% Daily Values,” to help consumers see how a food fits into an overall daily diet. It is important to pay attention to the serving sizes on any food label.

Packages also must list all ingredients in foods. This list is given in order, by weight, beginning with the ingredient that weighs the most. This information can be helpful when selecting foods.

- **Carbohydrates** are the body’s main source of fuel. Starchy foods like breads, spaghetti, rice, potatoes, corn and cereals are made up mostly of carbohydrates. Sweet foods like candy, jam and syrups also are carbohydrates. Some carbohydrates, called fiber or roughage, are hard to digest. They help move waste through the digestive system.
- **Fats** include butter, margarine, lard, shortening and cooking oils. Meats, cheese, cream, chocolate and many desserts like cakes and cookies usually have a lot of fat. Fats are very concentrated sources of energy. Some kinds of fat (particularly fats that are solid at room temperature) have been linked to diseases of the heart and circulatory system. Most Americans eat too many high-fat foods.
- **Proteins** are important for growth and repair of the body. Protein-rich foods include eggs, milk products, meat, dried beans, chicken, turkey and fish. The body also uses protein as fuel to provide energy for movement and growth.
- **Minerals** are found in small amounts in foods. They are needed for many of the body’s functions. For example, calcium is used to build bones and teeth and also is important for muscles and the nervous system. Iron goes into making red blood cells.
- **Vitamins** are other chemicals found naturally in food that are needed in very small amounts by the body. Fruits and vegetables are valuable sources of vitamins and minerals.

All foods also contain some water.



Unit Links

The Mysterious Marching Vegetables

Story, p. 34–35;
Sciences boxes, p. 3 and 34 (bottom)

Explorations

From the Label to the Table, p. 4; Marta Fiorotto, p. 7

CONCEPTS

- Food labels provide important information about the nutritional value of foods.

OVERVIEW

Students will learn about food labels to promote thinking about healthful eating. Students also will explore units of measurement commonly used on food labels.

SCIENCE, HEALTH & MATH SKILLS

- Measuring
- Comparing measurements
- Making observations
- Drawing conclusions

TIME

Preparation: 10 minutes
Class: 30 minutes

MATERIALS

Each group will need:

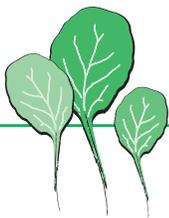
- Cup of white sugar
- Measuring cup
- Measuring spoon

Each student will need:

- Copy of student sheets

ESTIMATING SERVING SIZES

- 4 oz (1/4 lb or 114 g) of meat, poultry or fish is about the same size as a deck of cards.
- 1/2 cup of cereal or snacks is about as much as an adult can hold in his or her cupped hand.
- A 12 oz can of soft drink contains 1 1/2 cups of liquid.



HIDDEN FATS

Many crackers, cookies, candies, processed snack foods, fried foods and fast foods contain trans fat and saturated fat.

To learn more about foods and USDA recommendations, visit www.myplate.gov and www.myfoodapedia.gov.

WATER FOR LIFE

Water makes up three-fourths of the brain and muscles. Every cell in the body is packed with water. Water transports nutrients and wastes, helps control temperature, and makes many chemical reactions possible. The body loses almost three liters of water every day. Some of it is replaced with food, such as fruits and vegetables, but drinking six to eight glasses of liquid each day to maintain the body's water supply is recommended.

Source: *The Science of Water Teacher's Guide*. Baylor College of Medicine.

SERVING SIZE is the amount on which the nutrition facts are based. If someone eats more than the serving size, he or she will receive more of the calories and nutrients than the amounts listed on the label. Serving sizes often are smaller than the amount a typical person might eat.

CALORIES measure the amount of energy a food can provide. Most people need somewhere around 2,000 to 2,500 calories a day to meet their energy needs.

CALORIES FROM FAT is the amount of calories that come from fats and oils in a food.

TOTAL FAT gives the weight of all the fat in one serving. Most people should have less than 65 g of fat each day.

SATURATED FAT gives just the weight of unhealthy fats in one serving. Common saturated fats are lard, butter, shortening and coconut oil.

TRANS FAT is another unhealthy form of fat. It is created during the manufacturing of vegetable shortening and some margarines.

SODIUM is the amount of salt in a food. Some people need to restrict the amount of salt in their diets.

TOTAL CARBOHYDRATE shows sugars, starches and different kinds of fiber. Most people eat too much sugar. Brown sugar, molasses, honey and corn syrup all are sugars. Dietary fiber is important to health.

PROTEIN is essential for building muscles and for many body functions.

VITAMINS AND MINERALS are materials in food that are necessary for health. It is important to meet 100% of the daily requirements of vitamins and minerals by including 5–9 servings of fruits and vegetables in each day's diet.

SETUP

Have students work in groups of 2–4. Set up sugar and other materials in a central location.

PROCEDURE

1. Remind students of the food guides they used at the beginning of this unit. Ask, *How can we be sure that the foods we eat each day contain the nutrients we need?*
2. Mention that packaged foods now have uniform labels that provide information about the nutritional value of foods. Distribute copies of the student page.
3. Have students read the label depicted on the student page out loud in their groups. Follow by helping them understand the concepts outlined in the box above.
4. Ask students, *What units of measure are mentioned on the label?* (cups and grams). Mention that they will be investigating these measures using sugar.
5. Have students, in their groups, follow the instructions on the Sugar Measures Up page. They will explore how much sugar is contained in a typical soft drink.
6. Afterwards, ask, *Were you surprised about the amount of sugar in one soft drink? How many soft drinks would you need to meet your daily total carbohydrate requirement? Do you think that that would be a good way to fuel your body?*

From the Label to the Table!



Pay close attention to serving sizes.

Look for foods with lower levels of saturated fats.

This tells you how much salt is in food.

Calcium is important for bones and teeth.

Use this section as a guide for daily planning.

The amount of calories a person needs each day depends on many factors, including exercise.

Nutrition Facts

Serving Size 1 cup (228g)
Serving Per Container 2

Amount Per Serving

Calories 250 Calories from Fat 110

% Daily Value*

Total Fat 12g **18%**

Saturated Fat 3g **15%**

Trans Fat 3g

Cholesterol 30mg **10%**

Sodium 470mg **20%**

Total Carbohydrate 31g **10%**

Dietary Fiber 0g **0%**

Sugars 5g

Protein 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

Products labeled "light" or "lite" must have 1/3 fewer calories or 1/2 the fat of the foods to which they are compared. "Light" also can mean that salt has been reduced by 1/2.

Look for products that have more fiber and less sugar.

Vitamins and minerals help your body function properly.

¡De la Etiqueta a la Mesa!

Presta atención al tamaño de las porciones.

Busca alimentos con niveles bajos en grasas saturadas.

Esto te dice cuánta sal hay en la comida.

El calcio es importante para los huesos y los dientes.

Usa esta sección como guía para planear tus alimentos diariamente.

La cantidad de calorías que una persona necesita diariamente depende de varios factores, incluyendo el hacer ejercicio.

Datos de Nutrición

Tamaño de la porción 1 taza (228g)
Cantidad por paquete 2

Cantidad por porción

Calorías 250 Calorías derivadas de la grasa 110

% Valor Diario*

Total Grasa 12g **18%**

Grasa saturada 3g **15%**

Grasa *Trans* 3g

Colesterol 30mg **10%**

Sodio 470mg **20%**

Total Carbohidratos 31g **10%**

Fibra Alimenticia 0g **0%**

Azúcares 5g

Proteína 5g

Vitamina A 4% • Vitamina C 2%

Calcio 20% • Hierro 4%

* Porcentaje del valor diario es calculado en una dieta de 2,000 calorías.

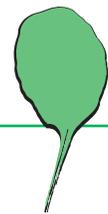
	Calorías: 2,000	2,500
Total Grasa	Menos de 65g	80g
Grasa Sat.	Menos de 20g	25g
Sodio	Menos de 300mg	300mg
Colesterol	Menos de 2,400mg	2,400mg
Total Carbohidratos	300g	375g
Fibra Alimenticia	25g	30g

Los productos que son etiquetados "light" o "lite" deben tener 1/3 de las calorías menos o de las grasas menos que los alimentos con que están siendo comparados. "Light" también quiere decir que la sal ha sido reducida a la mitad (1/2).

Busca productos que tengan más fibra y menos azúcar.

Las vitaminas y los minerales ayudan a tu cuerpo a funcionar apropiadamente.

Sugar Measures Up



You will need a measuring cup, a teaspoon, and sugar.

1. Think about an ordinary can of your favorite soft drink. The can holds 12 ounces of liquid. How many teaspoons of dissolved sugar do you think is in one can of soft drink?

2. On the measuring cup to the right, draw a line to show the amount of sugar you predict is in one can of soft drink.
3. Now, use the following information to answer the question below.

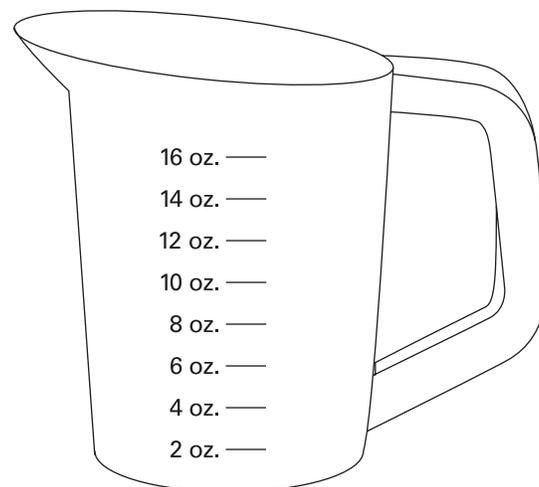
An average soft drink contains about 40 grams of sugar.

One teaspoon of sugar weighs 4 grams.

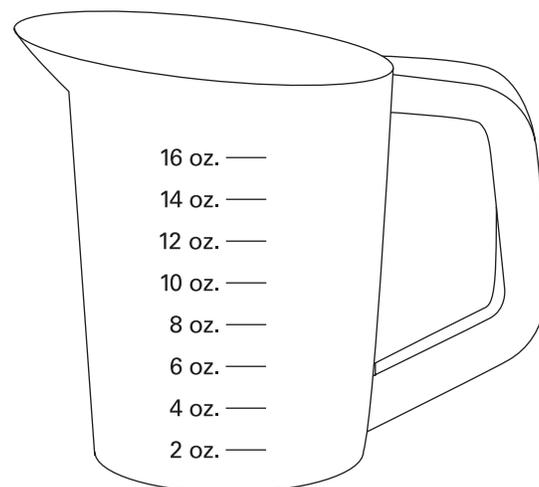
How many teaspoons of sugar are in a can of soft drink?

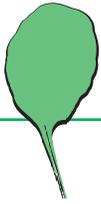
4. Put that many teaspoons of sugar into the measuring cup.
5. Look at the amount of sugar actually in your measuring cup. On the measuring cup to the right, draw a line showing the actual amount of sugar in a can of your favorite soft drink.

PREDICTION



ACTUAL





Midamos el Azúcar

Necesitas una taza de medir, una cucharita y azúcar.

1. Piensa sobre una lata de tu refresco favorito. Esta lata tiene 12 onzas de líquido. ¿Cuántas cucharaditas de azúcar disuelta tú crees que hay en una lata de refresco?

2. En la taza de medir que ves a la derecha, dibuja la cantidad de azúcar que tú predices hay en una lata de refresco.
3. Ahora, usa la siguiente información para contestar la pregunta que verás a continuación.

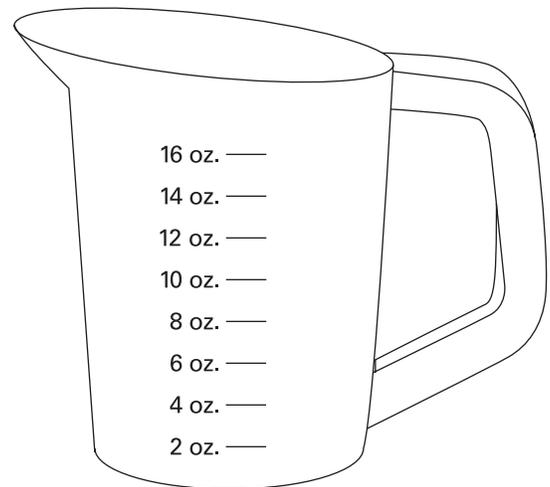
Una lata de refresco promedio contiene alrededor de 40 gramos de azúcar.

Una cucharadita de azúcar pesa 4 gramos.

¿Cuántas cucharaditas de azúcar hay en una lata de refresco?

4. Echa esta cantidad de cucharaditas de azúcar en la taza de medir.
5. Mira la cantidad de azúcar que hay en la taza de medir. En la taza de medir a tu derecha, dibuja la cantidad actual de azúcar que hay en una lata de tu refresco favorito.

PREDICCIÓN



ACTUAL

