Oklahoma Ag in the Classroom

# Read Before You Eat

## Objective

Students learn to understand the nutrition labels on different foods and be prepared to make healthier food choices.

## Background

Food labels tell us what is in the food we are eating. A law passed in 1993 says manufacturers of processed foods have to list all the ingredients used in food. This is very important for people who have food allergies and for those who have food restrictions for religious reasons, but we should all be aware of what is in the food we eat.

The first ingredient on the list will be the main ingredient. On a jar of jelly, the first ingredient listed may be fructose or sucrose. These are two kinds of sugar. If they are the first on the list, you know there is more sugar in the jelly than anything else. The next ingredient on the list will probably be some kind of fruit. That means after sugar, there is more fruit than anything else.

Another law says food manufacturers have to show how much of the US Food and Drug Administration's recommended daily value (%DV) are in one serving of food. Recommended daily values are reference amounts of nutrients to consume, or not to exceed, and are used to calculate the %DV.

## English Language Arts

1. Read and discuss the background and the Reading Page included with this lesson. Lead a discussion based on the questions provided with the Reading Page.
2. Provide food packaging for students to handle and examine. Discuss what makes some packages more appealing than others.
3. Bring in an assortment of print advertisements or taped commercials. Discuss the many reasons students would or would not be interested in the products they see advertised. Discuss the eye-catching colors, special offers, the models or actors used, etc. Ask students if they are swayed to buy the product more by the packaging or by what their families or peers like.

## Health

1. Divide students into groups of three or four. Give each group several food labels.
   —Students will use these labels to fill out the Food Label Worksheet.
   —When all groups are finished, discuss which foods are healthier than others and why.
2. As a homework assignment, students will bring in a variety of printed nutritional information. Besides that found on processed food packaging, students should look for fresh food that include nutritional labeling and brochures explaining nutritional information in fast food restaurants. Lead a discussion about what students have found.

## Oklahoma Academic Standards

GRADE 4

Speaking and Listening: R.1,2,3; W.1,2
Health/Safety—2.4,6; 3.1; 4.1,3; 6.2
Number & Operations: 1.1,5. Algebraic Reasoning: 2.2. Data & Probability: 1.1,2

GRADE 5

Speaking and Listening: R.1,2,3; W.1,2
Health/Safety—7.1
Number & Operations: 1.2,4. Data & Probability: 1.2

## Materials

Assorted food packaging with nutrition labels

## Vocabulary

**calcium**—a silver-white soft metallic element that is found only in combination with other elements (as in limestone) and is one of the necessary elements making up the bodies of most plants and animals

**calorie**—the amount of energy required to raise the temperature of one kilogram of water one degree Celsius, used especially to indicate the value of foods in the production of heat and energy

**carbohydrate**—one of various compounds of carbon, hydrogen and oxygen (as sugars, starches, or celluloses) most of which are formed by plants and are a major animal food

**cholesterol**—a waxy substance present in animal cells and tissues, that is important in bodily processes

**fat**—any of numerous compounds of carbon, hydrogen, and oxygen that make up most of plant and animal fat, and are a major class of energy-rich food

**mineral**—a solid chemical element or compound that occurs naturally in the form of crystals and results from processes not involving living or once-living matter

**nutrient**—a substance that provides nourishment nutrition—the processes by which an animal or plant takes in and makes use of food substances

**protein**—any of numerous substances that consist of chains of amino acids, contain the elements carbon, hydrogen, nitrogen, oxygen, and often sulfur, include many compounds (as enzymes and hormones) essential for life, and are supplied by various foods (as meat, milk, eggs, nuts and beans)

**saturated fat**—fat containing the maximum number of hydrogen atoms, usually solid at room temperature and predominant in animal fats

**serving**—a helping of food or drink

**sodium**—a mineral found in table salt which helps regulate water balance in the body and plays a role in maintaining blood pressure

**trans fat**—fat formed when vegetable oils are hardened into margarine or shortening and found in many common fried foods

**unsaturated fat**—fats commonly found in vegetable and plant sources, usually liquid at room temperature

**vitamin**—natural substances that plants and animals need to grow

## Math

1. Students will vote for the most appealing packages from the activities above and graph the results.
2. Write prices on packages if they are not shown. Students will use the labels to calculate cost per serving.
3. Students will find "number of servings" on the nutrition labels of two or three packages.
   —How many packages would be required if everyone in the class were to get one serving.
   Develop sentence problems from the nutrition labels, e.g., "How many servings has Max had if he eats six cookies?" "If Sally eats two cups of cereal every morning, how many days will her box of cereal last?"

## Extra Reading


Junior Master Gardener, *Health and Nutrition From the Garden*, Texas Agriculture Extension, 2002.

King, Hazel, *Carbohydrates for a Healthy Body (Body Needs)*, Heinemann, 2009.

Miller, Edward, *The Monster Health Book: A Guide to Eating Healthy, Being Active and Feeling Great for Monsters & Kids,* Holiday House, 2008.

Powell, Jillian, *Fats for a Healthy Body (Body Needs)*, Heinemann, 2009.

Reilly, Kathleen, and Samuel Carbaugh, *Food: 25 Amazing Projects: Investigate the History and Science of What We Eat (Build It Yourself Series)*, Nomad, 2010.

Royston, Angela, *Proteins for a Healthy Body (Body Needs)*, San Val, 2003.

Royston, Angela, *Vitamins and Minerals for a Healthy Body (Body Needs)*, Heinemann, 2009.

Royston, Angela, *Water and Fiber for a Healthy Body (Body Needs)*, Heinemann, 2009.

Taylor, Thomas, and Jill Barton, *Little Mouse and the Big Cupcake*, Boxer, 2010.


## Online Resources

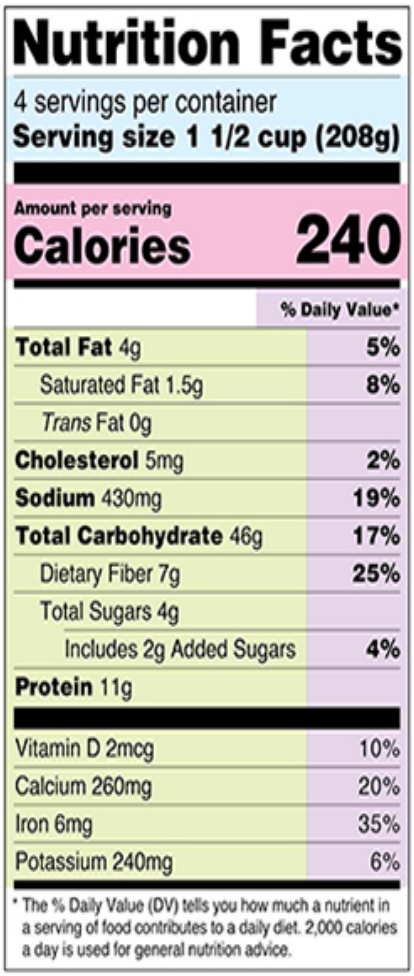
kidshealth.org/kid/stay_healthy/food/labels.html
www.nourishinteractive.com

Reading Page

# Nutrition Facts

Your body needs the right combination of nutrients to work properly and grow. The Nutrition Facts box found on food labels gives you information about nutrients found in packaged food. The Nutrition Facts food label is printed on the outside of packaged food. Fresh food that doesn't come prepackaged sometimes has nutrition facts, too.

Most nutrients are measured in grams or milligrams. Percentages on the label show how much the food provides of the total amount needed in a day. These numbers are based on eating 2,000 calories in a day, the amount most school-age kids need. A calorie is a unit of energy, a way of expressing how much energy you would get by eating a certain food.



**Nutrition Facts**

4 servings per container

**Serving size 1 1/2 cup (208g)**

| Amount per serving | |
|---|---|
| **Calories** | **240** |
| | **% Daily Value*** |
| **Total Fat** 4g | **5%** |
| Saturated Fat 1.5g | **8%** |
| *Trans* Fat 0g | |
| **Cholesterol** 5mg | **2%** |
| **Sodium** 430mg | **19%** |
| **Total Carbohydrate** 46g | **17%** |
| Dietary Fiber 7g | **25%** |
| Total Sugars 4g | |
| Includes 2g Added Sugars | **4%** |
| **Protein** 11g | |
| Vitamin D 2mcg | 10% |
| Calcium 260mg | 20% |
| Iron 6mg | 35% |
| Potassium 240mg | 6% |

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

## SERVING SIZE

The nutrition label always lists a serving size. This is the amount of food—1/2 cup of cereal, two cookies, five pretzels—on which the nutrition information is based. The nutrition label tells you how many nutrients are in the amount of food listed as the serving size. Serving sizes also helps you understand how much you are eating. For example, if you eat a sandwich with two slices of bread, you are actually getting two servings of bread, since one slice of bread is considered one serving.

## SERVINGS PER CONTAINER OR PACKAGE

The label also tells you how many servings are contained in that package of food. If there are 15 servings in a box of cookies, and each serving is two cookies, then you have enough for all 30 students in your class to have one cookie each.

## CALORIES

The number of calories in a single serving of the food is listed on the left of the label. Calories tell you the amount of energy in the food. People pay attention to calories because if you eat more calories than your body uses, you might gain weight.

## TOTAL FAT

The total fat is the number of fat grams contained in one serving of the food. Fat is an important nutrient that your body uses for growth and development, but you don't want to eat too much. The different kinds of fat, such as saturated, unsaturated and trans fat, may be listed separately on the label. Calories From Fat has been removed because research now shows that the type of fat consumed is more important than the amount.

## PERCENT DAILY VALUE

Percentages on food labels are based on recommended daily values %DV. The daily values are reference amounts of nutrients to consume, or not to exceed, and are used to calculate the %DV. The footnote at the bottom of the nutrition labels has changed to better explain the meaning of %DV. The %DV helps people understand the nutrition information in the context of a total daily diet.

## ADDED SUGARS

Added sugars in grams and as a %DV are now required to be on the label. Added sugars include sugars that are either added during the processing of the foods. These include sugars from syrups, honey, and concentrated fruit or vegetable juices. Studies show it is difficult to meet nutrient needs, while staying within calorie limits, if you consume more than 10% of your total daily calories from sugar.

CHOLESTEROL AND SODIUM

These numbers tell you how much cholesterol and sodium (salt) are in a single serving of the food. They are included on the label because some people need to limit cholesterol or salt in their diets. Cholesterol and sodium are usually measured in milligrams.

TOTAL CARBOHYDRATE

This number tells you how many carbohydrate grams are in one serving of food. Carbohydrates are your body's primary source of energy. This total is broken down into grams of sugar and grams of dietary fiber.

PROTEIN

Your body needs protein to build and repair essential parts of the body, such as muscles, blood, and organs. Protein is often measured in grams.

CALORIES PER GRAM

These numbers show how many calories are in one gram of fat, carbohydrate, and protein. This information is the same for every food and is printed on the food label for reference.

NUTRIENTS

Nutrients are given in the actual amount (milligrams or micrograms) in addition to percent daily value. If a food provides 20% of the DV for Vitamin D, that one serving of food gives you one fifth of the Vitamin D needed for the day. Vitamin D is important to absorb calcium and promote bone growth. Cheese, egg yolks, beef liver, and fatty fish are good sources of Vitamin D. Other foods are fortified with Vitamin D. Potassium is needed for bone and muscle strength. A few sources of potassium include bananas, oranges, cooked spinach, cooked broccoli, and cantaloupe. Americans often do not eat the recommended amounts of Vitamin D and Potassium, so they are now required on food labels. Vitamin A and Vitamin C are no longer required on food labels since deficiencies of these vitamins are rare today. Calcium and iron, also given as a %DV, are important minerals. Calcium helps build strong bones and strong, healthy teeth. Foods rich in calcium include dairy products, canned salmon and sardines with bones, leafy green vegetables, broccoli, and calcium-fortified foods such as orange juice, cereals and crackers. Foods rich in iron include red meat, spinach, and soybeans.

Sources:

http://kidshealth.org/kid/stay_healthy/food/labels.html
https://www.fda.gov/downloads/food/labelingnutrition/ucm511646.pdf

## Discussion Questions

Name _____

1. **How are most nutrients measured?**
2. **What is a calorie?**
3. **How many calories should school-age children eat in a day?**
4. **Why is serving size important?**
5. **What can happen if you eat more calories than you use in regular body metabolism and physical activity?**
6. **Why are Vitamin D and Potassium listed on labels?**
7. **What two essential nutrients are not shown on labels and why?**
8. **What does %DV stand for?**

## Discussion Questions (ANSWERS)

1. **How are most nutrients measured?**

Most nutrients are measured in grams or milligrams. Percentages on the label show how much the food provides of the total amount needed in a day.

2. **What is a calorie?**

The amount of energy in the food.

3. **How many calories should school-age children eat in a day?**

2,000 calories in a day are the amount most school-age kids need.

4. **Why is serving size important?**

It is the amount of food on which the nutrition information is based. Serving sizes also helps you understand how much you are eating.

5. **What can happen if you eat more calories than you use in regular body metabolism and physical activity?**

People pay attention to calories because if they eat more calories than their body uses, they might gain weight.

6. **Why are Vitamin D and Potassium listed on labels?**

Americans often do not eat the recommended amounts of Vitamin D and Potassium, so they are now required on food labels.

7. **What two essential vitamins are not shown on labels?**

Vitamin A and Vitamin C are no longer required on food labels since deficiencies of these vitamins are rare today.

8. **What does %DV stand for?**

Percentages on food labels are based on recommended daily values %DV. The daily values are reference amounts of nutrients to consume, or not to exceed, and are used to calculate the %DV.

Name_____

# Food Label Worksheet

**Complete the survey form, using the information from the package provided.**

**Name of food product**_____

**Serving Size**_____**Calories**_____

**Cholesterol**_____**Sodium**_____

**Nutrients:**

**Protein**_____**Carbohydrates**_____**Total Fat** _____

**Vitamin D**_____**Potassium**_____

**Iron**_____**Calcium**_____

**Is this a healthy food?**_____

**Why? or Why not? Explain.**

Oklahoma Ag in the Classroom is a program of the Oklahoma Cooperative Extension Service, the Oklahoma Department of Agriculture, Food and Forestry and the Oklahoma State Department of Education.