SCIENCE AND OUR FOOD SUPPLY

Using the Nutrition Facts Label to Make Healthy Food Choices

Teacher's Guide for High School Classrooms

2nd Edition

FDA

SCIENCE AND OUR FOOD SUPPLY

Using the **Nutrition Facts Label** to Make Healthy Food Choices

Dear Teacher,

You may be familiar with *Science and Our Food Supply*, the award-winning supplemental curriculum developed by the U.S. Food and Drug Administration (FDA). It uses food as the springboard to engage students in inquiry-based, exploratory science that fosters awareness and understanding related to **food safety, nutrition, agricultural biotechnology, and dietary supplements**.

FDA has updated ***Science and Our Food Supply: Using the Nutrition Facts Label to Make Healthy Food Choices*** to reflect the latest in nutrition science, knowledge, and labeling. It is designed to be used separately or in conjunction with your current curriculum and stems from science-based public awareness of the importance of instilling **positive nutrition behaviors** in youth.

We are pleased to present you with this nutrition-based curriculum that introduces students to the fundamentals of healthy food choices using the Nutrition Facts label as the starting point. The Teacher's Guide for High School Classrooms, 2nd edition, is your roadmap to implement the program, which introduces youth to key nutrition guidance that can foster general lifelong health.

- With engaging **hands-on activities**, students will become more aware of calories, serving size, and the nutrients they should get "more of" and "less of."
- Designed for use by high school teachers, the emphasis is on an **inquiry approach** that is customizable to **science, health, agriculture, and family and consumer science classes**, aligning with current education standards in these curriculum areas.

The curriculum also supports educators, in any subject area, who are seeking **Science, Technology, Engineering, and Mathematics (STEM)** activities for their classrooms.

We are confident that ***Science and Our Food Supply: Using the Nutrition Facts Label to Make Healthy Food Choices*** will inspire your students to learn about the science behind the nutrition choices they make every day. It will set them on the path to healthy food and beverage decisions for a lifetime of good health!

The *Science and Our Food Supply* Team

FDA – An agency of the U.S. Government responsible for developing policy and regulations for nutrition labeling and food standards. FDA is also authorized by Congress to inspect, test, and set safety standards for all food, except meat, poultry, processed eggs, and catfish.

Curriculum Development Advisors – Teachers representing family and consumer science, health, biology, agriculture, and related subject areas.

FDA's *Science and Our Food Supply* curriculum series includes:

- *Investigating Food Safety from Farm to Table*
- *Using the Nutrition Facts Label to Make Healthy Food Choices*
- *Exploring Food Agriculture and Biotechnology*
- *Examining Dietary Supplements*

Available online free at www.fda.gov/teachsciencewithfood

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A Note about Web Links

The web links provided in this Teacher's Guide were current at the time of publication. In the event that they change and/or are no longer available, we suggest that you visit the "home page" of the named organization. From there, search for topical information.

Permission is hereby granted in advance for the reproduction of these print materials in their entirety.

WELCOME TO

SCIENCE AND OUR FOOD SUPPLY

Using the **Nutrition Facts Label** to Make Healthy Food Choices

You and your students are about to experience a program that incorporates **nutrition** as an important part of your existing curriculum.

When it comes to making science, consumer sciences, and health relevant for your students, what better way than to apply it to something that's already part of their everyday lives? **Food** gives you an ideal springboard for introducing the science that is at the heart of nutrition—and exploring the impact that daily food and beverage choices can have on overall health.

Science and Our Food Supply: Using the Nutrition Facts Label to Make Healthy Food Choices includes timely food science and nutrition information to help you explore the impact of food choices on health.

You'll find in-depth information and activities covering these important topics:

- How to decipher the wealth of information on the Nutrition Facts label
- Calories and serving size: what they are, why they matter, and what's the "buzz" behind a nutrient-dense daily diet
- An inside look at sugars
- Sodium and its impact on health
- Meal planning: adding up what's on your plate
- The variety of fats found in foods and beverages
- How to learn more about the food and beverages from restaurants and vending machines

WHY USING THE NUTRITION FACTS LABEL MATTERS

Good nutrition in childhood and adolescence sets the stage for better lifelong health. In fact, nutrition plays a vital role in health throughout the lifespan. But today, too many teens are consuming diets with too many "empty" calories and not enough nutrients—and are not getting enough physical activity each day.

FDA and the Nutrition Facts Label

Science and Our Food Supply: Using the Nutrition Facts Label to Make Healthy Food Choices incorporates key elements of FDA's public health nutrition education campaigns. These are designed to help people *understand* nutrient information on food and beverage packages, and then *use* that information to make healthy dietary choices. The U.S. Centers for Disease Control and Prevention (CDC) stresses that schools play a particularly critical role in providing opportunities for students to learn about and practice healthy eating and physical activity behaviors. Making the Nutrition Facts label an integral part of daily behaviors today and in the future can "move the needle" to equip youth for a lifetime of making healthy food choices.

- High school is an ideal time to incorporate nutrition concepts as a part of your curriculum, using nutrition as a springboard to important science, family and consumer science, and health-related topics.
- Young people at this age are in a **transition phase**, becoming more responsible for themselves and making many of their own food choices. Helping them to establish good habits as they are learning to make these decisions can have a tremendous **long-term impact**!

The *Dietary Guidelines for Americans* (DGAs) recommend that teens limit added sugars to less than 10% of calories. However, more than 70% of them exceed this recommendation. *Science and Our Food Supply: Using the Nutrition Facts Label to Make Healthy Food Choices* can help you use scientific inquiry to engage students in the exploration of good nutrition—which, in turn, can put them on the path toward lifelong health!

The Nutrition Facts label is a handy and readily available tool. It contains nutrient information that can help your students make healthy food choices, once they know how to use it properly. In fact, the label can serve as a key contributor to **healthy decision-making** for *everyone* — and the earlier one starts using it, the better! That's because good nutrition not only aids in general well-being, but also can help prevent or manage chronic diseases later in life.

HIGHLIGHTS OF YOUR TEACHER'S GUIDE

What's Inside . . .

Background Information introduces key concepts for each module or activity. This curriculum is written for both teachers and students.

Activities engage students with hands-on exploration.

Student Worksheets are reproducible handouts (and available online as fillable forms) for students to record their data.

Resources list online references and materials supporting each activity. In addition to these resources, check out www.fda.gov/teachsciencewithfood for more online resources.

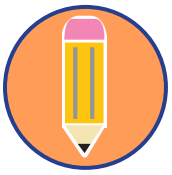
Connections to Curriculum Standards

This curriculum links to national education standards that provide guidance regarding the content that should be taught at particular levels, and what students at each level should be able to do and to understand. See pages 110–112.

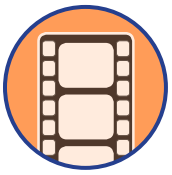
You should carefully examine local and state frameworks and curriculum guides to determine the best method for integrating ***Science and Our Food Supply: Using the Nutrition Facts Label to Make Healthy Food Choices*** with your school's current curriculum. Appropriate placement within the scope and sequence context of a school's curriculum will optimize the interdisciplinary connections and enhance the ability of your students to learn key concepts related to healthy eating.

Watch for the following icons . . .

Background Information
Indicates background information



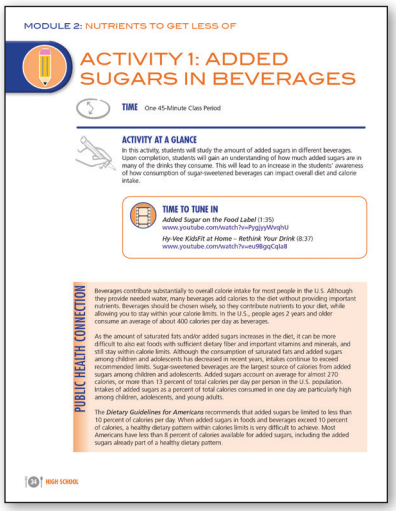
Activity
Indicates an activity



Video
Show or review a video clip. Video URLs and other hyperlinks are shown in purple.

OVERVIEW OF ACTIVITIES

The activities are written in this easy-to-understand format.



MODULE 2: NUTRIENTS TO GET LESS OF

ACTIVITY 1: ADDED SUGARS IN BEVERAGES

TIME One 45-Minute Class Period

ACTIVITY AT A GLANCE

In this activity, students will study the amount of added sugars in different beverages. Upon completion, students will gain an understanding of how much added sugars are in many of the drinks they consume. This will lead to an increase in the students' awareness of how consumption of sugar-sweetened beverages can impact overall diet and calorie intake.

TIME TO TUNE IN

Added Sugar on the Food Label (1:35)
www.youtube.com/watch?v=PyqjyWvqhU

Hy-Vee Kidsfit at Home – Rethink Your Drink (8:37)
www.youtube.com/watch?v=eu9BgqCqUs8

PUBLIC HEALTH CONNECTION

Beverages contribute substantially to overall calorie intake for most people in the U.S. Although they provide needed water, many beverages add calories to the diet without providing important nutrients. Beverages should be chosen wisely, so they contribute nutrients to your diet, while allowing you to stay within your calorie limits. In the U.S., people ages 2 years and older consume an average of about 400 calories per day as beverages.

As the amount of saturated fats and/or added sugars increases in the diet, it can be more difficult to also eat foods with sufficient dietary fiber and important vitamins and minerals, and still stay within calorie limits. Although the consumption of saturated fats and added sugars among children and adolescents has decreased in recent years, intakes continue to exceed recommended limits. Sugar-sweetened beverages are the largest source of calories from added sugars among children and adolescents: Added sugars account on average for almost 270 calories, or more than 13 percent of total calories per day per person in the U.S. population. Intakes of added sugars as a percent of total calories consumed in one day are particularly high among children, adolescents, and young adults.

The *Dietary Guidelines for Americans* recommends that added sugars be limited to less than 10 percent of calories per day. When added sugars in foods and beverages exceed 10 percent of calories, a healthy dietary pattern within calories limits is very difficult to achieve. Most Americans have less than 8 percent of calories available for added sugars, including the added sugars already part of a healthy dietary pattern.

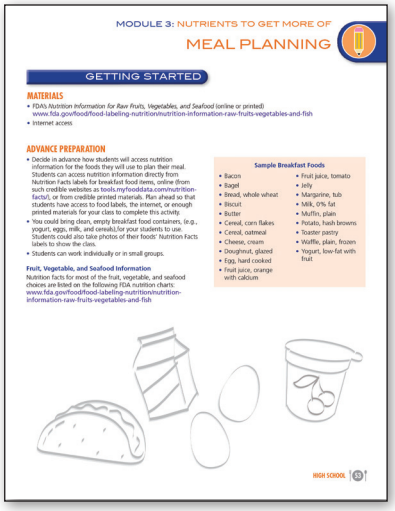
HIGH SCHOOL

TIME: The approximate amount of time needed to perform the activity.

ACTIVITY AT A GLANCE: Briefly summarizes the activity.

TIME TO TUNE IN: Shows the URL for online video or digital content (for youth) related to that module. Video URLs and web links are shown in purple.

PUBLIC HEALTH CONNECTION: Relates background information to relevant public health impact.



MODULE 3: NUTRIENTS TO GET MORE OF

MEAL PLANNING

GETTING STARTED

MATERIALS

- FDA's *Nutrition Information for Raw Fruits, Vegetables, and Seafood* (online or printed)
www.fda.gov/food/food-labeling-nutrition/nutrition-information-raw-fruits-vegetables-and-fish
- Internet access

ADVANCE PREPARATION

- Decide in advance how students will access nutrition information for the foods they will use to plan their meal. Students can access nutrition information directly from Nutrition Facts labels for breakfast food items, online (from such credible websites as tools.myfooddata.com/nutrition-facts/), or from credible printed materials. Plan ahead so that students have access to food labels, the internet, or enough printed materials for your class to complete this activity.
- You could bring clean, empty breakfast food containers, (e.g., yogurt, eggs, milk, and cereals),for your students to use. Students could also take photos of their foods' Nutrition Facts labels to show the class.
- Students can work individually or in small groups.

Fruit, Vegetable, and Seafood Information

Nutrition facts for most of the fruit, vegetable, and seafood choices are listed on the following FDA nutrition charts: www.fda.gov/food/food-labeling-nutrition/nutrition-information-raw-fruits-vegetables-and-fish

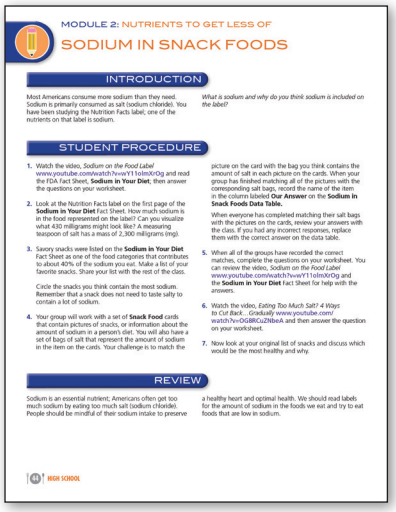
Sample Breakfast Foods

- Bacon
- Bagel
- Bread, whole wheat
- Biscuit
- Butter
- Cereal, corn flakes
- Cereal, oatmeal
- Cheese, cream
- Doughnut, glazed
- Egg, hard cooked
- Fruit juice, orange with calcium
- Fruit juice, tomato
- Jelly
- Margarine, tub
- Milk, 0% fat
- Muffin, plain
- Potato, hash browns
- Toaster pastry
- Waffle, plain, frozen
- Yogurt, low-fat with fruit

HIGH SCHOOL

MATERIALS: Lists the items needed to perform the activity.

ADVANCE PREPARATION: Indicates what you need to do *before* conducting the activity.



MODULE 2: NUTRIENTS TO GET LESS OF

SODIUM IN SNACK FOODS

INTRODUCTION

Most Americans consume more sodium than they need. Sodium is primarily consumed as salt (sodium chloride). You have been studying the Nutrition Facts label; one of the nutrients on that label is sodium.

What is sodium and why do you think sodium is included on the label?

STUDENT PROCEDURE

1. Watch the video, *Sodium on the Food Label* www.youtube.com/watch?v=wY11oImXrOg and read the FDA Fact Sheet, **Sodium in Your Diet**; then answer the questions on your worksheet.
2. Look at the Nutrition Facts label on the first page of the **Sodium in Your Diet** Fact Sheet. How much sodium is in the food represented on the label? Can you visualize what 430 milligrams might look like? A measuring teaspoon of salt has a mass of 2,300 milligrams (mg).
3. Savory snacks were listed on the **Sodium in Your Diet** Fact Sheet as one of the food categories that contributes to about 40% of the sodium you eat. Make a list of your favorite snacks. Share your list with the rest of the class.

   Circle the snacks you think contain the most sodium. Remember that a snack does not need to taste salty to contain a lot of sodium.
4. Your group will work with a set of **Snack Food** cards that contain pictures of snacks, or information about the amount of sodium in a person's diet. You will also have a set of bags of salt that represent the amount of sodium in the item on the cards. Your challenge is to match the picture on the card with the bag you think contains the amount of salt in each picture on the cards. When your group has finished matching all of the pictures with the corresponding salt bags, record the name of the item in the column labeled **Our Answer** on the **Sodium in Snack Foods Data Table.**

   When everyone has completed matching their salt bags with the pictures on the cards, review your answers with the class. If you had any incorrect responses, replace them with the correct answer on the data table.
5. When all of the groups have recorded the correct matches, complete the questions on your worksheet. You can review the video, *Sodium on the Food Label* www.youtube.com/watch?v=wY11oImXrOg and the **Sodium in Your Diet** Fact Sheet for help with the answers.
6. Watch the video, *Eating Too Much Salt? 4 Ways to Cut Back… Gradually* www.youtube.com/watch?v=OGBRCuZNbeA and then answer the question on your worksheet.
7. Now look at your original list of snacks and discuss which would be the most healthy and why.

REVIEW

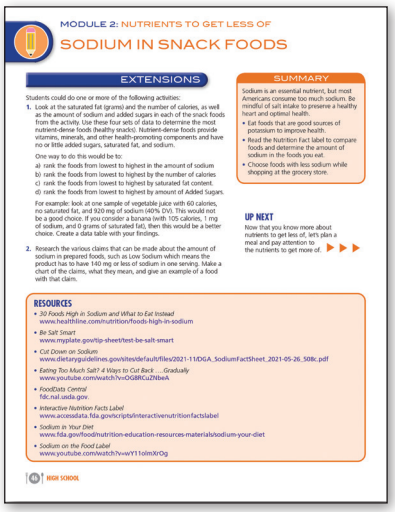
Sodium is an essential nutrient; Americans often get too much sodium by eating too much salt (sodium chloride). People should be mindful of their sodium intake to preserve a healthy heart and optimal health. We should read labels for the amount of sodium in the foods we eat and try to eat foods that are low in sodium.

HIGH SCHOOL

INTRODUCTION: Provides fun, innovative suggestions for introducing the activity. Where provided, suggested teacher dialogue is indicated by ***boldface italics***.

STUDENT PROCEDURE: Gives the step-by-step process for the activity. Where provided, suggested teacher dialogue is indicated by ***boldface italics***.

REVIEW: Uses interesting questions to guide students through a review of what they learned in the activity.



MODULE 2: NUTRIENTS TO GET LESS OF

SODIUM IN SNACK FOODS

EXTENSIONS

Students could do one or more of the following activities:

1. Look at the saturated fat (grams) and the number of calories, as well as the amount of sodium and added sugars in each of the snack foods from the activity. Use these four sets of data to determine the most nutrient-dense foods (healthy snacks). Nutrient-dense foods provide vitamins, minerals, and other health-promoting components and have no or little added sugars, saturated fat, and sodium.

   One way to do this would be to:

   a) rank the foods from lowest to highest in the amount of sodium
   b) rank the foods from lowest to highest by the number of calories
   c) rank the foods from lowest to highest by saturated fat content.
   d) rank the foods from lowest to highest by amount of Added Sugars.

   For example: look at one sample of vegetable juice with 60 calories, no saturated fat, and 920 mg of sodium (40% DV). This would not be a good choice. If you consider a banana (with 105 calories, 1 mg of sodium, and 0 grams of saturated fat), then this would be a better choice. Create a data table with your findings.
2. Research the various claims that can be made about the amount of sodium in prepared foods, such as Low Sodium which means the product has to have 140 mg or less of sodium in one serving. Make a chart of the claims, what they mean, and give an example of a food with that claim.

SUMMARY

Sodium is an essential nutrient, but most Americans consume too much sodium. Be mindful of salt intake to preserve a healthy heart and optimal health.

- Eat foods that are good sources of potassium to improve health.
- Read the Nutrition Fact label to compare foods and determine the amount of sodium in the foods you eat.
- Choose foods with less sodium while shopping at the grocery store.

UP NEXT

Now that you know more about nutrients to get less of, let's plan a meal and pay attention to the nutrients to get more of.

RESOURCES

- *30 Foods High in Sodium and What to Eat Instead*
www.healthline.com/nutrition/foods-high-in-sodium
- *Be Salt Smart*
www.myplate.gov/tip-sheet/test-be-salt-smart
- *Cut Down on Sodium*
www.dietaryguidelines.gov/sites/default/files/2021-11DGA_SodiumFactSheet_2021-05-26_508c.pdf
- *Eating Too Much Salt? 4 Ways to Cut Back …Gradually*
www.youtube.com/watch?v=OGBRCuZNbeA
- *FoodData Central*
fdc.nal.usda.gov.
- *Interactive Nutrition Facts Label*
www.accessdata.fda.gov/scripts/InteractiveNutritionFactslabel
- *Sodium in Your Diet*
www.fda.gov/food/nutrition-education-resources-materials/sodium-your-diet
- *Sodium on the Food Label*
www.youtube.com/watch?v=wY11oImXrOg

HIGH SCHOOL

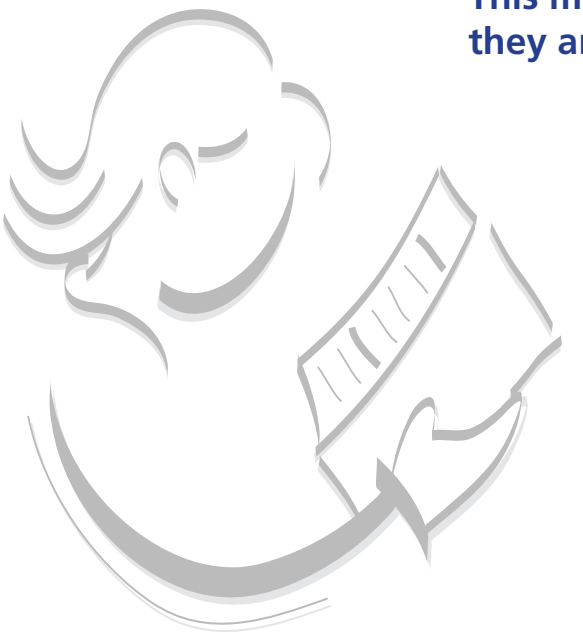
SUMMARY: Summarizes key concepts learned in the activity.

EXTENSIONS: Suggests activities to help students learn more about the topic.

RESOURCES: Provides references to online resources that enhance the activity or for further study.

UP NEXT: Gives a preview of the next activity.

MODULE 1 INTRODUCING THE NUTRITION FACTS LABEL



This module introduces what nutrients are and how they are shown on the Nutrition Facts label.

BACKGROUND INFORMATION

This section introduces nutrients, calories, and the concept of nutrient-dense foods. It also highlights the information that is found on the Nutrition Facts label.

ACTIVITY 1

Dissecting the Nutrition Facts Label introduces features of the Nutrition Facts label with a focus on protein.

Time to Tune In
This video introduces the information found on the Nutrition Facts label.

Making Healthy Choices Using the Nutrition Facts Label (3:00)
www.youtube.com/watch?v=OWMSJqnYFMY

ACTIVITY 2

Analyzing Serving Size allows students to compare a standard serving size of cereal with the amount they might actually consume.

Time to Tune In
The Difference Between Portion Sizes and Serving Sizes (3:24)
www.youtube.com/watch?v=SxF6hAceU1g&t

ACTIVITY 3

Creating a Nutrition Facts Label shows students how they can make a Nutrition Facts label using their own smoothie recipe.

Time to Tune In
5 Healthy Breakfast Smoothies! (4:24)
www.youtube.com/watch?v=CJN1n3fId_A

BACKGROUND INFORMATION

What is a Nutrient?

- A nutrient is a substance in food that contributes to growth and health. Nutrients have many functions, such as serving as a source of energy, providing structure to cells, and regulating the body's metabolism.
- Nutrients include proteins, fats, carbohydrates, vitamins, minerals, and water. Examples of nutrients that are important for growing bodies are protein and calcium.

What are Calories?

- Calories give your body energy to survive and thrive. Calories refer to the "energy" supplied by major food components: fat, carbohydrate, and protein.
- 2,000 calories per day is used for general nutrition advice. However, calorie needs vary. In fact, your calorie needs may be higher or lower and depend on your age, sex, height, weight, and physical activity level.
- Calories derived from foods or beverages containing few or no beneficial nutrients (such as regular soda) are sometimes referred to as "empty calories." Most empty calories come from added saturated fats, added sugars, and refined starches.

Nutrient-Dense Foods

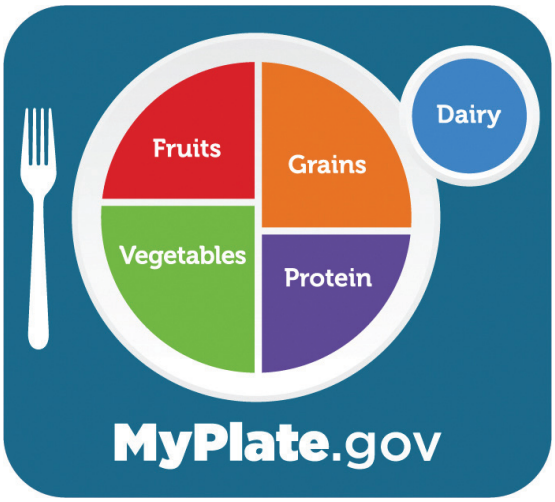
To get the nutrients you need while meeting your calorie requirements, it's best to choose "nutrient-dense" foods. Unlike foods with "empty calories," nutrient-dense foods provide vitamins, minerals, and other health-promoting components and have no or little added sugars, saturated fat, and sodium.

A healthy dietary pattern consists of nutrient-dense forms of foods and beverages across all food groups, in recommended amounts, and within calorie limits. Vegetables, fruits, whole grains, seafood, eggs, beans, peas, and lentils, unsalted nuts and seeds, fat-free and low-fat dairy products, fortified soy products, and lean meats and poultry—when prepared with no or little added sugars, saturated fat, and sodium—are nutrient-dense foods.

DID YOU KNOW?

A healthy diet includes protein, carbohydrates, and fats.

- 1 gram of protein has 4 calories
- 1 gram of carbohydrates has 4 calories
- 1 gram of fat has 9 calories



Visit www.myplate.gov to determine your personal daily calorie needs.

BACKGROUND INFORMATION

Nutrition Primer: What's on the Label?

Serving Size

Serving Size is based on the amount of food that is customarily eaten at one time. The Nutrition Facts label on a food's package includes nutrition information based on one serving of that food; however, some labels might *also* list the "per package" nutrition information. For example, a label might have two columns: one with calorie and nutrient information for one *serving* and the other with the information for the entire *package*.

Nutrition Facts

2 servings per container

Serving size **1 cup (255g)**

	Per serving		Per container	
Calories	**220**		**440**	
		% DV*		% DV*
Total Fat	5g	**6%**	10g	**13%**
Saturated Fat	2g	**10%**	4g	**20%**
Trans Fat	0g		0g	
Cholesterol	15mg	**5%**	30mg	**10%**
Sodium	240mg	**10%**	480mg	**21%**
Total Carb.	35g	**13%**	70g	**25%**
Dietary Fiber	6g	**21%**	12g	**43%**
Total Sugars	7g		14g	
Incl. Added Sugars	4g	**8%**	8g	**16%**
Protein	9g		18g	
Vitamin D	5mcg	25%	10mcg	50%
Calcium	200mg	15%	400mg	30%
Iron	1mg	6%	2mg	10%
Potassium	470mg	10%	940mg	20%

* 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.

The serving size is shown as a common household measure that is appropriate to the food (such as cup, tablespoon, piece, slice, or jar) followed by the metric amount in grams (g) or milliliters (mL).

When you compare calories and nutrients between different foods, don't forget to check the serving size to make an accurate comparison.

Servings Per Container

The "servings per container" on the label shows the total number of servings in the entire food package or container. Often, a package of food, such as a cereal box, contains more than one serving!

The information listed on the Nutrition Facts label is usually based on *one serving;* if a package contains four servings and you eat the entire package, you have consumed four times the amount of *calories* and *nutrients* that are listed on the label.

DID YOU KNOW?

The serving size is *not* a recommendation for how much you *should* eat or drink. Rather, according to law, the "Serving size" listed on the Nutrition Facts label is based on the amount of food people *typically* consume, as determined by national survey data.

Calories

Calories refers to the total number of calories or "energy" supplied from all sources (fat, carbohydrate, and protein) in one serving of the food.

Nutrients

Nutrients play a big role in your health. Knowing the nutrient content in one serving of food enables you to compare foods to make healthy choices.

Percent Daily Value (%DV)

The Percent Daily Value (%DV) on a food's Nutrition Facts label tells you how much a nutrient in a serving of food contributes to your daily diet. The %DVs are references for the amount of nutrients to consume (for beneficial nutrients) or not exceed (for nutrients to get less of) each day. The actual amount of a nutrient in a serving of food that corresponds to the %DV is listed in grams [g], milligrams [mg], or micrograms [mcg].

You can use the %DV to compare food products and to choose products that are higher in nutrients you want to get more of (like dietary fiber and calcium) and lower in nutrients you want to get less of (like saturated fat and sodium). The %DV column doesn't add up vertically to 100%; instead, the %DV is the percentage of the Daily Value for *each nutrient* in one serving of the food.

BACKGROUND INFORMATION

As a general rule:

- 5% DV or less of a nutrient per serving is considered low.
- 20% DV or more of a nutrient per serving is considered high.

Nutrients to get less of (get less than 100% DV each day from all foods) are:

- saturated fat
- added sugars
- sodium

Nutrients to get more of (get 100% DV on most days):

- calcium
- potassium
- dietary fiber
- vitamin D
- iron

The * [asterisk] at the bottom of the label is a reminder that %DV tells you how much a nutrient in one serving of food contributes to a daily diet. Consuming 2,000 calories a day is used for general nutrition advice. You may need more or fewer calories, but the %DV is still a helpful gauge.

Ingredient List

The ingredient list shows each ingredient in a food by its common or usual name in descending order by weight, so the ingredient that weighs the most in the product is listed first, and the ingredient that weighs the least is listed last. The ingredient list is usually located near the name of the food's manufacturer and often below the Nutrition Facts label.

A Note About Label Formats

Many packages use the general format of the Nutrition Facts label as shown on page 9. This is considered the standard vertical label.

Nutrition Facts labels on some packages (e.g., nut bars) without enough space for a standard vertical label may use other formats. A food having insignificant amounts of most nutrients may use a "simplified" label format, which only requires the declaration of five "core" nutrients: calories, total fat, sodium, total carbohydrate, and protein.

Some packages will have a dual column label that shows calories and nutrients on both a "per serving" and "per container" basis to help people understand how much they would consume if they eat what's in the entire package.

The U.S. Food and Drug Administration oversees the Nutrition Facts label found on packaged foods. The label makes it easier for you to make informed food choices that support a healthy diet. It reflects current scientific information, including the link between diet and chronic diseases such as heart disease and some cancers.

Nutrition Facts

1 8 servings per container
Serving size **2/3 cup (55g)**

2 **Amount per serving**
Calories **230**

	% Daily Value*
3 **Total Fat** 8g	**10%**
Saturated Fat 1g	**5%**
Trans Fat 0g	
Cholesterol 0mg	**0%**
Sodium 160mg	**7%**
Total Carbohydrate 37g	**13%**
Dietary Fiber 4g	**14%**
Total Sugars 12g	
4 Includes 10g Added Sugars	**20%**
Protein 3g	
5 Vitamin D 2mcg	10%
Calcium 200mg	15%
Iron 8mg	45%
Potassium 235mg	6%

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.

DID YOU KNOW?

Vitamin D and potassium are required to be listed on the label because Americans do not always get the recommended amounts. Diets higher in vitamin D and potassium can reduce the risk of osteoporosis (vitamin D) and high blood pressure (potassium). **Vitamin A and C** are no longer required on the label since deficiencies of these vitamins are rare today. However, these nutrients can be included on the label on a voluntary basis.

1. Servings

The number of "Servings per container" and the "Serving size" declaration are in larger type size than most other information. The serving size (which is in bold type) is not a recommendation of how much you *should* eat or drink, but is based on the amount of food people *typically* consume at one time.

There are labeling requirements for certain sized packages such as those that are between one and two servings—or are larger than a single serving but could be consumed in one *or* multiple sittings. Some larger products (such as some canned soups) require a "dual column" label that shows calories and nutrients on both a "per serving" and "per container" basis to help people understand the amounts they are getting, especially if they eat the contents of the entire package.

It's important to know that all the nutrient amounts shown on the label, including the number of calories, refer to the **size of the serving**. That's why you should pay attention to the serving size, as well as how many servings there are in the food package. For example, depending on how much you eat, you might be consuming ½ serving, 1 serving, or more.

2. Calories

"Calories" is large and bold to make it easy to find. Balance the number of calories you consume with the number of calories your body uses to achieve or maintain a healthy weight.

When comparing foods, remember:
- 100 calories per serving is a MODERATE amount.
- 400 calories per serving is a HIGH amount.

3. Fats

Research shows that the *type* of fat consumed is more important than the amount. Diets higher in saturated fat and *trans* fat are associated with increased levels of total cholesterol and/or "bad" (LDL) cholesterol in the blood —which, in turn, can lead to an **increased risk of developing cardiovascular disease**.

Remember that fat-free doesn't mean calorie-free. Lower fat items may have as many calories as full-fat versions because of their sugar content.

4. Added Sugars

"Added Sugars" (such as sucrose or dextrose) include sugars that are added to foods during their processing, foods such as table sugar that are packaged as sweeteners, and sugars naturally found in syrups and honey. Added sugars do not include naturally occurring sugars that are found in milk, fruits, and vegetables.

5. Mandatory Vitamins and Minerals

The actual amount (in milligrams or micrograms) in addition to the %DV must be listed for vitamin D, calcium, iron, and potassium on the standard vertical label and on some other formats. The Daily Values are reference amounts of nutrients to consume (or not to exceed) and are used to calculate the %DV.

6. Footnote

The footnote at the bottom of the label explains the meaning of %DV. The %DV helps you understand the nutrition information in the context of a total daily diet and is especially useful for comparing different brands of similar products.

Check your own calorie needs at www.myplate.gov.

DIETARY GUIDELINES FOR AMERICANS, 2020 – 2025

Key Recommendations

1. **Follow a healthy dietary pattern at every life stage.** At every life stage—infancy, toddlerhood, childhood, adolescence, adulthood, pregnancy, lactation, and older adulthood—it is never too early or too late to eat healthfully. Follow a healthy dietary pattern across the lifespan to meet nutrient needs, help achieve a healthy body weight, and reduce the risk of chronic disease.

2. **Customize and enjoy nutrient-dense food and beverage choices to reflect personal preferences, cultural traditions, and budgetary considerations.** A healthy dietary pattern can benefit all individuals regardless of age, race, or ethnicity, or current health status. The *Dietary Guidelines* provides a framework intended to be customized to individual needs and preferences, as well as the foodways of the diverse cultures in the United States.

3. **Focus on meeting food group needs with nutrient-dense foods and beverages, and stay within calorie limits.** An underlying premise of the *Dietary Guidelines* is that nutritional needs should be met primarily from foods and beverages—specifically, nutrient-dense foods and beverages. Nutrient-dense foods provide vitamins, minerals, and other health-promoting components and have no or little added sugars, saturated fat, and sodium. A healthy dietary pattern consists of nutrient-dense forms of foods and beverages across all food groups, in recommended amounts, and within calorie limits. The core elements that make up a healthy dietary pattern include:
   - Vegetables of all types—dark green; red and orange; beans, peas, and lentils; starchy; and other vegetables
   - Fruits, especially whole fruits
   - Grains, at least half of which are whole grains
   - Dairy, including fat-free or low-fat milk, yogurt, and cheese, and/or lactose-free versions and fortified soy beverages and yogurt as alternatives
   - Protein foods, including seafood, lean meats and poultry, eggs, beans, peas, and lentils, and nuts, seeds, and soy products
   - Oils, including vegetable oils and oils in food, such as seafood and nuts

4. **Limit foods and beverages higher in added sugars, saturated fat, and sodium, and limit alcoholic beverages.** At every life stage, meeting food group recommendations—even with nutrient-dense choices—requires most of a person's daily calorie needs and sodium limits. A healthy dietary pattern doesn't have much room for extra added sugars, saturated fat, or sodium—or for alcoholic beverages. A small amount of added sugars, saturated fat, or sodium can be added to nutrient-dense foods and beverages to help meet food group recommendations, but foods and beverages high in these components should be limited.

   Limits are:
   - **Added sugars**—Less than 10 percent of calories per day starting at age 2. Avoid foods and beverages with added sugars for those younger than age 2.
   - **Saturated fat**—Less than 10 percent of calories per day starting at age 2.
   - **Sodium**—Less than 2,300 milligrams per day—and even less for children younger than age 14.
   - **Alcoholic beverages**—Adults of legal drinking age can choose not to drink, or to drink in moderation by limiting intake to 2 drinks or less in a day for men and 1 drink or less in a day for women, when alcohol is consumed. Drinking less is better for health than drinking more. There are some adults who should not drink alcohol, such as women who are pregnant.

Physical Activity

Childhood and adolescence is a critical period for developing movement skills, learning healthy habits, and establishing a firm foundation for lifelong health and well-being. For youth, regular physical activity can improve bone health, cardiorespiratory and muscular fitness, and cognition (including academic achievement), and reduce the symptoms of depression.

School-aged children and adolescents need at least 60 minutes of moderate-to-vigorous activity daily to attain the most health benefits from physical activity. Most activity can be aerobic, like walking, running, or anything that makes their heart beat faster. They also need muscle-strengthening and bone-strengthening activities that make their muscles and bones strong, like climbing on playground equipment, playing basketball, and jumping rope.

BACKGROUND INFORMATION

Recipe Analyzers and Label-Making Tools

Everyday cooks and food companies of all sizes can use several online tools to help calculate the nutrients in their recipes and products. Some of these tools also help calculate %DVs and create a Nutrition Facts label for a specific recipe or product. Some older online recipe analyzers do not calculate Added Sugars separate from the amount of Total Sugars, since declaring Added Sugars on the Nutrition Facts label was not required until 2020. In addition, Nutrition Facts label tools that meet FDA labeling guidelines must use specific "rounding rules" for nutrient quantities and %DVs.

What are the Food Label Rounding Rules?

The Nutrition Facts label rounding rules save space on labels (i.e., restrict the use of too many digits) and provide for consistent presentation requirements for all manufacturers. Consistent rounding rules also make it easier for consumers to compare similar products and choose the foods and beverages that they prefer. These rounding rules are part of the FDA regulations, and they differ depending on the nutrient.

UP NEXT

Now that you know more about the Nutrition Facts label, let's look at some nutrients to get less of.

Rounding Rules for Select Nutrients

	Vit. D	Calcium	Iron	Potas.	Added Sugars
Daily Value	20 mcg	1,300 mg	18 mg	4,700 mg	50 gm
Rounded Amount for Label	Express to nearest 0.1 mcg	Express to nearest 10 mg	Express to nearest 0.1 mg	Express to nearest 10 mg	< 0.5 g express as 0 < 1 g express as "Contains less than 1 g" or "less than 1 g" > 1 g express to nearest 1 g
Un-rounded %DV	%DV = (actual amount (g)/DV) X 100				
Rounded %DV for Label	≤10% level: express to the nearest 2% >10% to ≤ 50% level: express to nearest 5% >50% level: express to nearest 10%				Round to the nearest 1% Round down if ≤ 0.49% and up if ≥ 0.50%
Low %DV option for specific nutrients	If less than 2%, may be declared by a zero or by the use of an asterisk (or other symbol) that refers to another asterisk (or symbol) that is placed at the bottom of the table that is followed by the statement "Contains less than 2 percent of the Daily Value of this (these) nutrient (nutrients)."				If less than 1 gm, may not be included on the Nutrition Facts label, but (in such cases) the statement "Not a significant source of added sugars" is required as a footnote below the table of nutrients.

RESOURCES

- *Nutrition Facts Label: Read the Label Youth Outreach Campaign*
  www.fda.gov/food/new-nutrition-facts-label/read-label-youth-outreach-materials
- *FDA's Interactive Label*
  www.accessdata.fda.gov/scripts/InteractiveNutritionFactsLabel/#downloadables
- *MyPlate website*
  www.myplate.gov
- *Serving Size Gets a Reality Check*
  www.fda.gov/ForConsumers/ConsumerUpdates/ucm386203.htm
- *Behind the Label with FDA: Information for Educators on the Updated Nutrition Facts Label*
  www.fda.gov/food/health-educators/behind-label-fda-information-educators-updated-nutrition-facts-label

ACTIVITY 1: DISSECTING THE NUTRITION FACTS LABEL

TIME: Three 45-Minute Class Periods

ACTIVITY AT A GLANCE

This activity is designed to help students better understand the Nutrition Facts label and make healthier food choices by ranking foods according to the amount of protein per serving. They will then create a Mini-Book, which they will use to search for products in a Scavenger Hunt.

TIME TO TUNE IN

Making Healthy Choices Using the Nutrition Facts Label
www.youtube.com/watch?v=OWMSJqnYFMY (3:00)

GETTING STARTED

MATERIALS

- **Food Product Cards** with Nutrition Facts Labels (pages 15-17)
- **Dissecting the Nutrition Facts Label** worksheet
- Scissors
- Glue
- Internet access

ADVANCE PREPARATION

1. Divide the class into small groups of 2 or 3.
2. Make a set of the **Food Product Cards** for each group. To make the cards, cut out the individual food cards and associated Nutrition Facts label. Fold the label behind the food card and glue in place.
3. Make copies of the **Dissecting the Nutrition Facts Label** worksheet for each group.
4. Make a copy of the **Nutrition Facts Label Mini-Book** (page 18) for each student. (See page 89 for written instructions to make the **Mini-Book**.)
5. Provide scissors for each group.

INTRODUCTION

Healthful eating is a balancing act, and it takes practice to get it right.

Health experts agree that what and how much you eat can affect your health now and in the future. It is important to understand the link between diet and health and to develop the ability to consistently make informed food choices.

There are many tools that can help people make informed choices about what they eat. Among them are: the Nutrition Facts label; the *Dietary Guidelines for Americans*; and MyPlate. The activities in this module will teach students about the Nutrition Facts label. The *Dietary Guidelines for Americans* and MyPlate will be discussed in other Modules of this Guide.

DISSECTING THE NUTRITION FACTS LABEL

STUDENT PROCEDURES

Protein is an important nutrient found in foods from both plants and animals. All people, and especially tweens and teens, need protein for growth and development. As a class, you will look at the pictures of food on the **Food Product Cards** your teacher has provided and arrange them in order from the greatest to the least, according to the amount of protein per serving in each product. Record this information on your group's **Dissecting the Nutrition Facts Label** worksheet.

Part A

1. Look at just the pictures on the **Food Product Cards** with your group. Each card shows a picture of a food product that contains protein. As you look at the cards, discuss which food you think has the most protein per serving, and which has the least. Arrange the cards in order of the food with the most protein per serving to that with the least and record this information in column 1 on your group's **Dissecting the Nutrition Facts Label** worksheet.

   What information did you use to arrange the products?

2. Now look at the Nutrition Facts label for each product to find how much protein per serving is in each one. List the foods from most to least amount of protein per serving according to the information on the label.

3. How accurate was your initial list? In the Compare column, write an up arrow (↑) if the actual ranking was higher than you initially recorded, a down arrow (↓) if it was lower than you initially recorded, and an equal mark (=) if it was the same as your ranking. Which foods surprised you by having more or less protein per serving than your group thought?

   The Nutrition Facts label tells you a lot about a food item. It does not suggest what foods to eat, but it helps you make wise food choices. Almost all packaged foods sold in grocery stores are required to have Nutrition Facts labels.

   Why do you think it is important to understand the Nutrition Facts label?

Part B

To learn more about the Nutrition Facts label, you will research the label and use that information to make a **Nutrition Facts Label Mini-Book**.

1. Watch the video, *Making Healthy Choices Using the Nutrition Facts Label* www.youtube.com/watch?v=OWMSJqnYFMY

2. After you watch the video, go to the Interactive Nutrition Facts Label website: www.accessdata.fda.gov/scripts/interactivenutritionfactslabel. Click on "Whats on the Label." Use the information from the video and website to complete the pages on your worksheet that will become your **Nutrition Facts Label Mini-Book**. Once you've completed adding information to each page, you will make the **Mini-Book**.

   Start at the top of the food label. The first categories are **Serving Size** and **Servings per Container.** What do these tell you about the packaged food? Using the Interactive Nutrition Facts label resource, explain what **Serving Size** and **Servings per Container** mean in your **Mini-Book**.

   Calories are next on the label. Explain what the label tells you about calories in your **Mini-Book**.

   The next line shows **% Daily Value**; the label shows a **% Daily Value** for most of the nutrients. What does this number tell you about the nutrients? Add this information to your **Mini-Book**.

   The list of **Nutrients** follows the % Daily Value. Some of these are **Nutrients To Get Less Of** and some, **Nutrients To Get More Of**. Explain what these are in your **Mini-Book**.

   Near the bottom of the label are certain **Vitamins and Minerals**. Which ones are included on the label and why are they included? Add this information to your **Mini-Book**.

   To make the **Mini-Book**, follow the directions in this video: *How to Make a Quick and Easy 8 Page Mini-Book From One Piece of Paper*; you can also look at the diagram on page 89. Text on your paper can face up or down. www.youtube.com/watch?v=21qi9ZcQVto.

Part C

Use your **Nutrition Facts Label Mini-Book** to answer questions on your **Scavenger Hunt** worksheet, then review and compare your responses with other groups.

STUDENT WORKSHEET

ACTIVITY 1: DISSECTING THE NUTRITION FACTS LABEL

Name _____ Date _____ Class/Hour _____

1. Arrange the cards in order of the food you think has the most protein per serving to the food you think has the least protein per serving. Complete Column 1 in the data table below with that information.
2. After you read the food product nutrition labels, rearrange the foods in the correct order of most to least Protein per Serving – record that in Column B. If you find 2 products with the same information, list them alphabetically.
3. Record the arrangement of the foods according to the amount of Protein per Serving listed on the Nutrition Facts label for each food. In the last column, mark an up arrow (↑) if the actual ranking was higher than you initially recorded, a down arrow (↓) if it was lower than you initially recorded, and an equal mark (=) if it was the same as your ranking. [Note: If you are filling in this worksheet online, you can write Up or Down for the arrow direction.]

Data Table to Rank Foods According to Protein per Serving

A List the foods in order of those you think have the **most** Protein per Serving to the **least** Protein per Serving	B Look at the Nutrition Facts label for each product and list the products in order from those with the **most** Protein per Serving to those with the **least** Protein per Serving. Include how many grams of protein for each one.	C Compare each food position in column A with the same food's position in column B. Record ↑ if the position in B is higher, ↓ if the position in B is lower, and = if the position is the same in columns A and B.

1. What information did your group use to initially rank the foods according to the amount of protein per serving? _____

_____

2. How accurate was your group's initial ranking of the food products? _____

_____

3. What food products surprised your group by their ranking and why? _____

_____

4. Why do you think it is important to understand the Nutrition Facts label? _____

_____

Strawberry Yogurt Smoothie

Nutrition Facts

1 servings per container
Serving size 1 bottle (207 mL)

Amount per serving
Calories 100

	% Daily Value *
Total Fat 0.5g	**1%**
Saturated Fat 0g	**0%**
Trans Fat 0g	
Cholesterol 5mg	**2%**
Sodium 80mg	**3%**
Total Carbohydrate 22g	**8%**
Dietary Fiber 3g	**11%**
Total Sugars 18g	
Includes 14g Added Sugars	**28%**
Protein 6g	

Vit.D 4mcg 20% • Calcium 280mg 20%
Iron 0mg 0% • Potas. 290mg 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.

Macaroni and Cheese

Nutrition Facts

1 servings per container
Serving size 1 container (68g)

Amount per serving
Calories 220

	% Daily Value *
Total Fat 8g	**10%**
Saturated Fat 2.5g	**13%**
Trans Fat 0g	
Cholesterol 10mg	**3%**
Sodium 620mg	**27%**
Total Carbohydrate 31g	**11%**
Dietary Fiber 1g	**4%**
Total Sugars 5g	
Includes 0g Added Sugars	**0%**
Protein 8g	

Vit.D 0mcg 0% • Calcium 110mg 8%
Iron 1.2mg 6% • Potas. 190mg 4%

* 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.

Plain Bagel

Nutrition Facts

6 servings per container
Serving size 1 bagel (95g)

Amount per serving
Calories 250

	% Daily Value *
Total Fat 1g	**1%**
Saturated Fat 0g	**0%**
Trans Fat 0g	
Cholesterol 0mg	**0%**
Sodium 460mg	**20%**
Total Carbohydrate 53g	**19%**
Dietary Fiber 2g	**7%**
Total Sugars 6g	
Includes 0g Added Sugars	**0%**
Protein 9g	

Vit.D 0mcg 0% • Calcium 0mg 0%
Iron 0mg 0% • Potas. 0mg 0%

* 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.

Peach Low-Fat Yogurt

Nutrition Facts

1 servings per container
Serving size 1 container (170g)

Amount per serving
Calories 160

	% Daily Value *
Total Fat 2g	**3%**
Saturated Fat 1.5g	**8%**
Trans Fat 0g	
Cholesterol 10mg	**3%**
Sodium 100mg	**4%**
Total Carbohydrate 30g	**11%**
Dietary Fiber 0g	**0%**
Total Sugars 28g	
Includes 20g Added Sugars	**40%**
Protein 6g	

Vit.D 1.5mcg 8% • Calcium 300mg 25%
Iron 0mg 0% • Potas. 290mg 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.

Cheese Pizza

Nutrition Facts

1 servings per container
Serving size 1 package (119g)

Amount per serving
Calories 260

	% Daily Value *
Total Fat 10g	**13%**
Saturated Fat 5g	**25%**
Trans Fat 0g	
Cholesterol 25mg	**8%**
Sodium 530mg	**23%**
Total Carbohydrate 29g	**11%**
Dietary Fiber 2g	**7%**
Total Sugars 5g	
Includes 3g Added Sugars	**6%**
Protein 15g	

Vit.D 0mcg 0% • Calcium 430mg 35%
Iron 2.1mg 10% • Potas. 220mg 4%

* 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.

Chicken Noodle Soup

Nutrition Facts

1 servings per container
Serving size 1 container (284g)

Amount per serving
Calories 70

	% Daily Value *
Total Fat 1g	**1%**
Saturated Fat 0g	**0%**
Trans Fat 0g	
Cholesterol 20mg	**7%**
Sodium 910mg	**40%**
Total Carbohydrate 11g	**4%**
Dietary Fiber 2g	**7%**
Total Sugars 3g	
Includes 1g Added Sugars	**2%**
Protein 6g	

Vit.D 0mcg 0% • Calcium 30mg 2%
Iron 1mg 6% • Potas. 410mg 8%

* 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.

Chicken Nuggets

Nutrition Facts

25 servings per container
Serving size about 5 pieces (88g)

Amount per serving
Calories 230

	% Daily Value *
Total Fat 14g	**18%**
Saturated Fat 3.5g	**18%**
Trans Fat 0g	
Cholesterol 40mg	**13%**
Sodium 500mg	**22%**
Total Carbohydrate 14g	**5%**
Dietary Fiber 1g	**4%**
Total Sugars 0g	
Includes 0g Added Sugars	**0%**
Protein 13g	

Vit.D 0mcg 0% • Calcium 0mg 0%
Iron 1mg 6% • Potas. 210mg 4%

* 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.

Southwestern Chicken Salad

Nutrition Facts

1 servings per container
Serving size 1 container (184g)

Amount per serving
Calories 300

	% Daily Value *
Total Fat 23g	**29%**
Saturated Fat 5g	**25%**
Trans Fat 0g	
Cholesterol 30mg	**10%**
Sodium 500mg	**22%**
Total Carbohydrate 15g	**5%**
Dietary Fiber 4g	**14%**
Total Sugars 3g	
Includes 1g Added Sugars	**2%**
Protein 12g	

Vit.D 0mcg 0% • Calcium 100mg 8%
Iron 1.8mg 10% • Potas. 0mg 0%

* 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.

Spaghetti with Meatballs

Nutrition Facts

1 servings per container
Serving size 1 container (357g)

Amount per serving
Calories 430

		% Daily Value *
Total Fat	13g	**17%**
Saturated Fat	4g	**20%**
Trans Fat	0g	
Cholesterol	30mg	**10%**
Sodium	790mg	**34%**
Total Carbohydrate	59g	**21%**
Dietary Fiber	4g	**14%**
Total Sugars	6g	
Includes 3g Added Sugars		**6%**
Protein	22g	
Vit.D 0.2mcg	2%	• Calcium 90mg 6%
Iron 2.6mg	15%	• Potas. 550mg 10%

* 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.

Chocolate Peanut Butter Protein Bar

Nutrition Facts

1 servings per container
Serving size 1 bar (45g)

Amount per serving
Calories 190

		% Daily Value *
Total Fat	8g	**10%**
Saturated Fat	3.5g	**18%**
Trans Fat	0g	
Cholesterol	5mg	**2%**
Sodium	250mg	**11%**
Total Carbohydrate	19g	**7%**
Dietary Fiber	2g	**7%**
Total Sugars	13g	
Includes 12g Added Sugars		**24%**
Protein	12g	
Vit.D 0mcg	0%	• Calcium 40mg 4%
Iron 3mg	15%	• Potas. 150mg 4%

* 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.

Ham and Cheese Sandwich

Nutrition Facts

1 servings per container
Serving size 1 package (54g)

Amount per serving
Calories 120

		% Daily Value *
Total Fat	3.5g	**4%**
Saturated Fat	1.5g	**8%**
Trans Fat	0g	
Cholesterol	15mg	**5%**
Sodium	310mg	**13%**
Total Carbohydrate	15g	**5%**
Dietary Fiber	1g	**4%**
Total Sugars	2g	
Includes 2g Added Sugars		**4%**
Protein	8g	
Vit.D 0mcg	0%	• Calcium 60mg 4%
Iron 0.5mg	2%	• Potas. 150mg 4%

* 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.

Chocolate Protein and Vitamin Shake

Nutrition Facts

1 servings per container
Serving size 1 bottle (414 mL)

Amount per serving
Calories 320

		% Daily Value *
Total Fat	5g	**6%**
Saturated Fat	3g	**15%**
Trans Fat	0g	
Cholesterol	25mg	**8%**
Sodium	370mg	**16%**
Total Carbohydrate	53g	**19%**
Dietary Fiber	1g	**4%**
Total Sugars	51g	
Includes 28g Added Sugars		**56%**
Protein	17g	
Vit.D 5mcg	25%	• Calcium 600mg 45%
Iron 2mg	10%	• Potas. 970mg 20%

* 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.

VITAMINS AND MINERALS

NUTRIENTS TO GET LESS OF

NUTRIENTS TO GET MORE OF

% DAILY VALUE

CALORIES

SERVINGS PER CONTAINER

SERVING SIZE

Strawberry Yogurt Smoothie

Nutrition Facts

1 servings per container
Serving size 1 bottle (207 mL)

Amount per serving
Calories **100**

	% Daily Value *
Total Fat 0.5g	**1%**
Saturated Fat 0g	**0%**
Trans Fat 0g	
Cholesterol 5mg	**2%**
Sodium 80mg	**3%**
Total Carbohydrate 22g	**8%**
Dietary Fiber 3g	**11%**
Total Sugars 18g	
Includes 14g Added Sugars	**28%**
Protein 6g	

Vit.D 4mcg 20%	Calcium 280mg 20%
Iron 0mg 0%	Potas. 290mg 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.

Nutrition Facts Label Mini-Book

STUDENT WORKSHEET

ACTIVITY 1: SCAVENGER HUNT (CONTINUED)

Name _____ Date _____ Class/Hour _____

Part C

For this Scavenger Hunt, use your set of **Product Cards** to answer the following questions about the products. You can use the information in your **Mini-Book**, the label on the back of the **Product Card**, and the Interactive Nutrition Facts Label website: www.accessdata.fda.gov/scripts/interactivenutritionfactslabel.

For example: "Find the product that is healthiest for saturated fat." Look through the Nutrition Facts labels on the back of the **Product Cards** and find the one that your group thinks is healthiest for saturated fat. Write the name of that product in the correct space below and then give your group's reason for choosing that particular product.

1. Which products are the healthiest for saturated fat? Explain your answer.

a. Product Name _____ b. Grams of saturated fat _____

c. Explanation _____

2. Which products are the least healthy for saturated fat? Explain your answer.

a. Product Name _____ b. Grams of saturated fat _____

c. Explanation _____

3. Find a product that is a good source of fiber.

a. Product Name _____ b. Grams of fiber _____

c. Explain why you picked this product. _____

4. Which product has the highest amount of added sugars per serving? Would you recommend this product to a classmate? Why or why not?

a. Product Name _____ b. Amount of Added Sugar _____

c. Recommendation and Explanation _____

_____

5. Which product has the highest amount of sodium per serving? Would you recommend this product to your grandparent who has high blood pressure? Why or why not?

a. Product Name _____ b. Amount of Sodium _____

c. Recommendation and Explanation _____

_____

continued on next page

STUDENT WORKSHEET
SCAVENGER HUNT (CONTINUED)

6. A general rule is that 5% DV or less of a nutrient per serving is considered low; 20% DV or more of a nutrient per serving is considered high. Select a product and explain why it falls in either category.

a. Product Name _____

b. Explanation _____

7. Pick one product and look at the section on the Nutrition Facts label that lists vitamins and minerals. What are the vitamins and minerals listed on the selected food label?

a. Product Name _____

b. Vitamins _____

c. Minerals _____

8. Pick one of the products that you think would be a good source of protein.

a. Product Name _____

b. Why it is a good source of protein? _____

Review your responses to the Scavenger Hunt questions and compare them with two other groups. How close were your responses to those of the other groups?

_____

_____

_____

_____

DISSECTING THE NUTRITION FACTS LABEL

REVIEW

As a class, list 10 reasons why you should read and use Nutrition Facts labels.

EXTENSIONS

Students could do one or more of the following activities:

1. Create a Data Table and rank the foods (used in the first activity) from those with the greatest amount of added sugar per serving to the least amount.
2. In addition to the Nutrition Facts label, most packaged foods have an ingredient list. What information is included in the list? In what order are the ingredients listed?
3. In addition to the Nutrition Facts label, packaged foods may contain different messages such as "Heart Healthy," "Gluten Free," or "USDA Organic." How helpful do you think these messages are to people as they try to make healthier food choices?

RESOURCES

- *Behind the Label*
  www.fda.gov/food/health-educators/behind-label-fda-information-educators-updated-nutrition-facts-label
- *Dietary Guidelines for Americans*
  www.dietaryguidelines.gov/sites/default/files/2021-03/Dietary_Guidelines_for_Americans-2020-2025.pdf
- *Food Data Central*
  fdc.nal.usda.gov/fdc-app.html#/food-search
- *Food Label Smarts*
  www.youtube.com/watch?v=KlwCAM30NQI
- *HealthWorks! Healthy Living Series: Reading Food Labels – Cincinnati Children's*
  www.youtube.com/watch?v=tB7BgszxLs8
- *How to Make a Quick and Easy 8 Page Mini-Book From One Piece of Paper*
  www.youtube.com/watch?v=21qi9ZcQVto
- *Interactive Nutrition Facts Label*
  www.accessdata.fda.gov/scripts/interactivenutritionfactslabel
- *Making Healthy Choices Using the Nutrition Facts Label*
  www.youtube.com/watch?v=OWMSJqnYFMY
- *MyPlate*
  www.myplate.gov
- *Nutrition IX Database*
  www.nutritionix.com
- *Physical Activity Guidelines for Americans*
  health.gov/sites/default/files/2019-09/Physical_Activity_Guidelines_2nd_edition.pdf
- *Reading the Food Label*
  www.youtube.com/watch?v=s5zroZfMn0I

ACTIVITY 2: ANALYZING SERVING SIZE

TIME: One 45-minute Class Period

ACTIVITY AT A GLANCE

Students will compare their regular portion of breakfast cereal with the serving size listed on the Nutrition Facts label on the box. They will also compare the corresponding number of calories and other nutrients. When they complete the activity, students will have a better understanding of the differences between "serving size" and "portion size."

TIME TO TUNE IN

The Difference Between Portion Sizes and Serving Sizes (3:24)
www.youtube.com/watch?v=SxF6hAceU1g

GETTING STARTED

MATERIALS

- Internet access
- Three different kinds of cereal in 1-gallon plastic bags
- Cereal boxes from the three different kinds of cereal
- Cereal bowls large enough to hold a student-sized serving
- Scales or measuring cups
- Calculator
- **Get the Facts on Serving Size** – FDA Fact Sheet
- **Analyzing Serving Size** worksheet

ADVANCE PREPARATION

1. Divide the class into small groups of 2 or 3.
2. Make copies of the **Analyzing Serving Size** worksheet for each group.
3. Assemble the materials.

INTRODUCTION

In the first activity, students learned about the components of the Nutrition Facts label. In this activity, they will learn more about just one part of that label – Serving Size. Students will pour approximately the same amount of cereal that they regularly eat for breakfast into a bowl and compare that amount with the serving size listed on the label. Next, students will calculate the number of calories, carbohydrates, sugars, and added sugars in the cereal they poured into their bowl and then calculate its nutrients if they add one cup of 2% milk to the bowl. Finally, they will compare their serving size with the one listed on the Nutrition Facts label.

ANALYZING SERVING SIZE

STUDENT PROCEDURE

In the previous activity, you learned about all of the different parts of the Nutrition Facts label. In this activity, the focus is on the Serving Size.

When you eat cereal for breakfast, how many servings, according to the Nutrition Facts label, do you think you typically eat?

1. Watch the video, *The Difference Between Portion Sizes and Serving Sizes* www.youtube.com/watch?v=SxF6hAceU1g

2. With your group, select one of the cereals and enter the name of the cereal in the Data Table.

3. Pour a bowl of that cereal equal to the amount you would typically eat for breakfast. This is called the portion size. Make sure that everyone in your group agrees on the amount of cereal poured.

4. Measure the amount of the cereal in your bowl either with a scale or a measuring cup and record this information in the Data Table. Remember to include the required units, for example: 1 cup; 252 grams.

5. Find the Serving Size on your cereal's Nutrition Facts label and record it in the Data Table. Be sure to use the same measurement (cup, grams) you used to measure your group's cereal.

How did your group's portion of cereal compare with the Serving Size listed on the Nutrition Facts label? For an accurate measurement of this comparison, divide the amount of cereal in your bowl by the serving size. How many servings does your group have in its bowl? Record this data in the Data Table. For example, if you have 3 cups of cereal in your bowl and the serving size is one cup, divide 3 cups by 1 cup. The answer is 3. This means that your portion size is 3 times the serving size

6. Look at the Nutrition Facts label for your cereal and use it to record the additional information in the Data Table.

7. Use the information from the Nutrition Facts label to calculate the amount of the listed nutrients you would get from eating your group's bowl of cereal and record it in the Data Table. For example, if you have 3 servings in your bowl, multiply the number of calories on the Nutrition Facts label by 3 to get the number of calories in your group's bowl of cereal.

8. If you add 1 cup of 2% milk to your bowl of cereal, how will the nutrients change? Record your answer in the Data Table. For example, if in your bowl of cereal you had 300 calories, add 120 calories from the cup of milk for a total of 420 calories. Follow this same procedure for the rest of the nutrients on the data table.

Nutrition Facts label for 2% Milk

Nutrition Facts

8 servings per container
Serving size 1 cup (240 mL)

Amount per serving
Calories 120

	% Daily Value *
Total Fat 5g	**6%**
Saturated Fat 3g	**15%**
Trans Fat 0g	
Cholesterol 20mg	**7%**
Sodium 120mg	**5%**
Total Carbohydrate 12g	**4%**
Dietary Fiber 0g	**0%**
Total Sugars 11g	
Includes 0g Added Sugars	**0%**
Protein 8g	

Vit.D 3mcg 15% •	Calcium 290mg 20%
Iron 0mg 0% •	Potas. 360mg 8%

* 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.

9. Compare your portion size with that of 2 other groups. If their portion sizes are different, why do you think they are different?

ANALYZING SERVING SIZE

REVIEW

Watch the video *The Difference Between Portion Sizes and Serving Sizes:* www.youtube.com/watch?v=SxF6hAceU1g and/or read Serving Size on the New Nutrition Facts Label: www.fda.gov/food/new-nutrition-facts-label/serving-size-new-nutrition-facts-label. Draw/illustrate what serving size and portion size mean to your group.

EXTENSION

Students could do the following activity:

Suppose you are making a choice between two similar breakfast cereals. What might influence you to select one over the other? How would you decide which one has the nutrients you need? Be specific in your response and be sure to reference the Nutrition Facts label.

RESOURCES

- *Behind the Label*
  www.fda.gov/food/health-educators/behind-label-fda-information-educators-updated-nutrition-facts-label
- *Dietary Guidelines for Americans, 2020-2025*
  health.gov/our-work/nutrition-physical-activity/dietary-guidelines
- *Food Label Smarts*
  www.youtube.com/watch?v=KlwCAM30NQI
- *HealthWorks! Healthy Living Series: Reading Food Labels – Cincinnati Children's*
  www.youtube.com/watch?v=tB7BgszxLs8
- *Interactive Nutrition Facts Label*
  www.accessdata.fda.gov/scripts/interactivenutritionfactslabel
- *Making Healthy Choices Using the Nutrition Facts Label*
  www.youtube.com/watch?v=OWMSJqnYFMY
- *MyPlate*
  www.myplate.gov
- *Physical Activity Guidelines for Americans*
  health.gov/sites/default/files/2019-09/Physical_Activity_Guidelines_2nd_edition.pdf
- *Reading the Food Label*
  www.youtube.com/watch?v=s5zroZfMn0I
- *The Difference Between Portion Sizes and Serving Sizes*
  www.youtube.com/watch?v=SxF6hAceU1g
- *Portion Distortion*
  www.nhlbi.nih.gov/health/educational/wecan/eat-right/portion-distortion.htm

STUDENT WORKSHEET
ACTIVITY 2: ANALYZING SERVING SIZE

Name _____ Date _____ Class/Hour _____

DATA TABLE FOR _____
(Cereal Name)

Complete these questions and the Data Table with information about your chosen cereal.

1. When you eat cereal for breakfast, how much do you estimate you eat (ex: 1/2 cup, 1 cup, 2 cups, etc.)? _____
2. When you pour your bowl of breakfast cereal, how many servings do you think are in the bowl? _____
3. What does the Nutrition Facts label for your breakfast cereal say about Serving Size? _____
4. Compare the amount of cereal you actually poured into your bowl with the amount per serving on the label.
   How many servings are in the original bowl of cereal that you poured? _____

	Nutrition Facts label Information	Our Poured Bowl of Cereal	Our Bowl of Cereal with 1 Cup of 2% Milk
Serving Size			
Calories			
Carbohydrates			
Fiber			
Total Sugars			
Added Sugars			
Protein			

5. Compare the portion size of the bowl you poured with that of 2 other groups. If their portion sizes are different, why do you think they are different?
   _____
   _____
6. One of the entries in your **Mini-Book** is **Nutrients To Get Less Of**. One of these nutrients is added sugar.
   a. How much added sugar is in one serving of your cereal? _____
   b. How much added sugar is in the portion of cereal that you poured into the bowl without measuring? _____
   Look at the ingredients for your selected cereal and answer the following questions.
   c. What added sugars are in the cereal? _____
   d. Why should you try to limit added sugars? _____
   e. What could you do to make your cereal choice more healthy? _____

ACTIVITY 3: CREATING A NUTRITION FACTS LABEL

TIME One 45-minute Class Period

ACTIVITY AT A GLANCE

Students will analyze the nutrients in a Fruit Smoothie recipe and create a Nutrition Facts label for the Smoothie.

TIME TO TUNE IN

5 Healthy Breakfast Smoothies! (4:24)
www.youtube.com/watch?v=CJN1n3fId_A

GETTING STARTED

MATERIALS

- **Creating a Nutrition Facts Label** worksheet
- Internet Access

ADVANCE PREPARATION

Make copies of **Creating a Nutrition Facts Label** worksheet for each student.

INTRODUCTION

The previous activities used Nutrition Facts labels that are available for most food products. In this activity, students will use two online website tools to create their own Nutrition Facts label for a Fruit Smoothie.

They will input a recipe's ingredients into a Recipe Nutrition Calculator and then insert that information into a label-making tool to create a Nutrition Facts label that shows the nutritional qualities for one 8-oz cup Smoothie. Then they will use Rounding Rules to finalize their Nutrition Facts label.

CREATING A NUTRITION FACTS LABEL

STUDENT PROCEDURE

Have you ever wondered what nutrients are in a Fruit Smoothie? What, exactly, are you eating? How healthy is that Smoothie?

Watch *5 Healthy Breakfast Smoothies* www.youtube.com/watch?v=CJN1n3fId_A.

Why do you think it is important to know what nutrients are in a Smoothie you might make?

In this activity, you will create a basic Fruit Smoothie recipe for yourself and a friend, use a Recipe Nutrition Calculator to analyze its ingredients and nutrients, and a web-based label-making tool to create a Nutrition Facts label for one serving of the recipe. The Nutrition Facts label will help you determine if your Smoothie is a healthy choice.

How to Build a Smoothie with the Ingredients Below (1 serving)

1. Choose a base, 1 cup
2. Choose a fruit (fresh or frozen), 1 cup
3. Add an optional sweetener or flavoring, 1/2 tbsp
4. Put all ingredients into a blender.
5. Blend until creamy and smooth.

1. Choose up to three ingredients from the Smoothie Ingredients List.

2. Open the link for the Recipe Nutrition Calculator and write the name of the recipe in the first text box; you can name your Smoothie according to the fruit you choose, e.g., Banana Smoothie, Strawberry Smoothie, etc.) www.verywellfit.com/recipe-nutrition-analyzer-4157076

   Sometimes the website provides additional information about some of the ingredients or may present the ingredient differently. The analyzer may tell you to edit an ingredient because it doesn't always recognize it the way it is entered. Some ingredients are listed in a general category first, and then by a subtype, e.g., instead of "coconut water," write "water" and then choose "coconut" for that ingredient. The same is true for tea, milk, and yogurt. [Use the pencil icon to edit.]

SMOOTHIE INGREDIENTS LIST (Approximate yield with these ingredients is 2 cups (16 oz.)

1 cup Base — Base (Liquid portion of smoothie) 1 cup	1 cup Fruit — Fruit 1 cup	Sweetener/Flavoring (1/2 Tablespoon)	Added Sugars (on the Label) if included in the recipe
• Water	• Bananas	• Brown sugar	4g
• Coconut water	• Blueberries	• Honey	9g
• Dairy milk-whole	• Blackberries	• White sugar	6g
• 2% milk, fat free	• Cantaloupe	• Maple syrup	6g
• Almond beverage	• Cherries	• Nutmeg	0g
• Coconut beverage	• Kiwi	• Peanut butter	1g
• Soy beverage	• Mango	• Vanilla extract	0g
• Rice beverage (incl. 17g Added Sugars)	• Papaya	• Cinnamon	0g
• Unsweetened juice, e.g., orange, grape	• Peaches		
• Green tea	• Pineapple		
• Plain yogurt	• Raspberries		
• Vanilla yogurt (incl. 17g Added Sugars)	• Strawberry		
	• Watermelon		

CREATING A NUTRITION FACTS LABEL

3. Record your ingredients, their volume, and any added sugars at the top of your worksheet. You can combine fruits in the recipe, as long as the combination adds up to 1 cup of fruit.

4. For the Recipe Analyzer and in Column A:
   When entering the ingredients into the Analyzer, record "2" for your Number of Servings, since you are making your recipe for two people. Record your Serving Size as 1 cup (or 8 oz).

   Repeat this in Column A on your worksheet.

   A special note about added sugars: Some sweeteners like honey are considered added sugars when added to a recipe.

5. Click on the Analyze Recipe tab.

6. The label will show the complete breakdown of all of the nutrients per serving. However, this analyzer does not include added sugars or calculate values that follow FDA's Rounding Rules. Record the amounts for each nutrient from the Recipe Analyzer on your worksheet in Column A of your data chart.

7. If your ingredients contain Added Sugars, pay attention to your serving size and how much Added Sugars are in that particular size of the serving. For example, if your ingredients are 1 cup of plain yogurt, 1 cup of fruit, and 1/2 tablespoon of honey, then the total volume of 16 oz will contain 9 gm Added Sugars from the honey.

   But if your serving size is half the total volume, then your Added Sugars per 8 oz serving is only 4.5 grams. Record the amount of Added Sugars for one serving on the line for Added Sugars in column A.

8. Enter the amounts, e.g., calories, g, mg, from Column A into the Label-Making Tool at www.onlinelabels.com/tools/nutrition-label-generator. On the website:
   a. In Step 1, choose the New (2016) format.
   b. In Step 2, choose the Standard nutrition label with extra fields for misc. vitamins, Vertical layout.
   c. In Step 3, enter the data from column A.
   d. For the **Vitamin Data Format**, choose **Units of Measure**.
   e. When you are satisfied with the data you have entered, click the **Generate** tab to get your label.
   f. Record the information from the generated label on the **Label from the Label-Making Tool** on column B of your worksheet. This Label-Making tool uses proper rounding rules for the macronutrients (except for Added Sugars) shown in the top part of the label, but does not round the micronutrients at the bottom – that's your job!

9. Use the Rounding Rule values for Vitamin D, Calcium, Iron, Potassium, and Added Sugars to revise those values, if needed, and make your final label. Record the final rounded values on the label in Column B on your worksheet.

REVIEW

The Nutrition Facts label is a very useful tool to help you make informed decisions for maintaining a healthy diet.

Knowing the calories and nutrients in a recipe can help you to make smarter and more healthy food decisions.

EXTENSIONS

Students could do one of the following activities:

1. Check your Nutrition Facts label know how with the short Interaction Label online Fun Facts quiz: www.accessdata.fda.gov/scripts/interactivenutritionfactslabel/quiz/

2. Use a website such as *FoodData Central* - fdc.nal.usda.gov/index.html to research the ingredients in the recipe you used during the previous activity. Enter each recipe ingredient in the search box to find the nutrients for that ingredient. Total the nutrient information for all of the ingredients in the recipe to see if you get the same information as you did when you used the Nutrition Calculator.

CREATING A NUTRITION FACTS LABEL

RESOURCES

- *Behind the Label*
  www.fda.gov/food/health-educators/behind-label-fda-information-educators-updated-nutrition-facts-label
- *Dietary Guidelines for Americans*
  www.dietaryguidelines.gov/sites/default/files/2021-03/Dietary_Guidelines_for_Americans-2020-2025.pdf
- *FoodData Central*
  fdc.nal.usda.gov/index.html
- *Happy Forks*
  happyforks.com
- *HealthWorks! Healthy Living Series: Reading Food Labels – Cincinnati Children's*
  www.youtube.com/watch?v=tB7BgszxLs8
- *Interactive Nutrition Facts Label*
  www.accessdata.fda.gov/scripts/interactivenutritionfactslabel
- *MyPlate*
  www.myplate.gov
- *Nutrition IX Database*
  www.nutritionix.com
- *Nutrition Tracking Made Easy*
  www.myfooddiary.com
- *Physical Activity Guidelines for Americans*
  health.gov/sites/default/files/2019-09/Physical_Activity_Guidelines_2nd_edition.pdf
- *Verywell Fit Recipe Nutrition Calculator*
  www.verywellfit.com/recipe-nutrition-analyzer-4157076

UP NEXT

Now that you know more about how to use the Nutrition Facts label, let's take a look at some nutrients to get less of.

STUDENT WORKSHEET

ACTIVITY 3: CREATING A NUTRITION FACTS LABEL

Name _____ Date _____ Class/Hour _____

Smoothie Name _____

Ingredients: Base _____ Volume _____ Added Sugars _____ (if any, see page 27)

Fruit _____ Volume _____

Sweetener/flavoring (if any) _____ Volume _____ Added Sugars _____ (if any, see page 27)

A Nutrition Calculator Values for Combined Ingredients from www.verywellfit.com/recipe-nutritionanalyzer-4157076

_____ serving per container
Serving size _____
Calories/serving _____
Total Fat _____ g
Saturated Fat _____ g
Cholesterol _____ mg
Sodium _____ mg
Total Carbohydrates _____ g
Dietary Fiber _____ g
Total Sugars _____ g
Protein _____ g
Vitamin D _____ mcg
Calcium _____ mg
Iron _____ mg
Potassium _____ mg

Assume 0g *Trans* Fat
Added Sugars/Serving _____ g

B Label from Label-Making Tool at www.onlinelabels.com/tools/nutrition-label-generator

Nutrition Facts

_____ servings per container
Serving size _____

Amount per serving
Calories _____

		% Daily Value *
Total Fat	_____ g	_____ %
Saturated Fat	_____ g	_____ %
Trans Fat	_____ g	
Cholesterol	_____ mg	_____ %
Sodium	_____ mg	_____ %
Total Carbohydrate	_____ g	_____ %
Dietary Fiber	_____ g	_____ %
Total Sugars	_____ g	
Includes _____ g Added Sugars		_____ %
Protein	_____ g	

Vit.D _____ mcg _____ % • Calcium _____ mg _____ %
Iron _____ mg _____ % • Potas. _____ mg _____ %

* 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.

Check Rounding Rules for These Select Nutrients

	Vit. D	Calcium	Iron	Potas.	Added Sugars
Daily Value	20 mcg	1,300 mg	18 mg	4,700 mg	50 gm
Rounded Amount for Label	Express to nearest 0.1 mcg	Express to nearest 10 mg	Express to nearest 0.1 mg	Express to nearest 10 mg	< 0.5 g express as 0 < 1 g express as "Contains less than 1 g" or "less than 1 g" > 1 g express to nearest 1 g
Un-rounded %DV	%DV = (actual amount (g)/DV) X 100				
Rounded %DV for Label	≤10% level: express to the nearest 2% >10% to ≤ 50% level: express to nearest 5% >50% level: express to nearest 10%				Round to the nearest 1% Round down if ≤ 0.49% and up if ≥ 0.50%
Low %DV option for specific nutrients	If less than 2%, may be declared by a zero or by the use of an asterisk (or other symbol) that refers to another asterisk (or symbol) that is placed at the bottom of the table that is followed by the statement "Contains less than 2 percent of the Daily Value of this (these) nutrient (nutrients)."				If less than 1 gm, may not be included on the Nutrition Facts label, but (in such cases) the statement "Not a significant source of added sugars" is required as a footnote below the table of nutrients.

Use the Rounding Rules to revise the values for Added Sugars, Vitamin D, Calcium, Iron, and Potassium, if needed.

1. Is your recipe a good source for nutrients? If yes, which ones?

_____

_____

2. Are there any nutrients in your recipe that should be limited? If yes, which one(s) and give the reasons for each one.

_____

_____

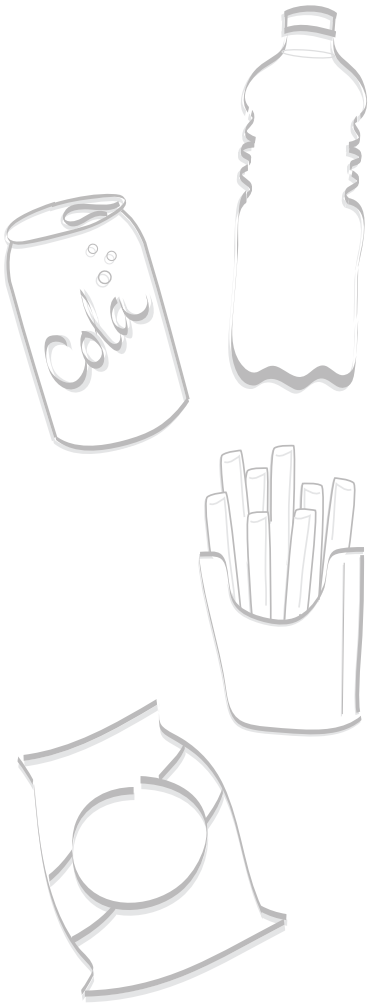
3. Which nutrients in your recipe would you change to make it a healthier choice? Experiment with your recipe: change an ingredient and/or the amount of the ingredient in the recipe and explain how the nutrients change on the label.

_____

_____

MODULE 2 NUTRIENTS TO GET LESS OF

This module introduces nutrients to get less of, some foods and beverages that may contain nutrients to limit, and how to use the Nutrition Facts label to identify them.



BACKGROUND INFORMATION: PART 1

Understanding Carbohydrates introduces these nutrients with a focus on added sugars.

ACTIVITY 1

Added Sugars in Beverages challenges students to examine the added sugars content in a variety of familiar drinks.

Time to Tune In
Added Sugar on the Food Label (1:35)
www.youtube.com/watch?v=PygjyyWvqhU

Hy-Vee KidsFit at Home – Rethink Your Drink (8:37)
www.youtube.com/watch?v=eu9BgqCqIa8

BACKGROUND INFORMATION: PART 2

All About Sodium discusses what sodium is, where it is found, and how to limit its intake.

ACTIVITY 2

Sodium in Snack Foods uses some favorite snack foods as a springboard to examine sodium content.

Time to Tune In
Sodium on the Food Label (1:09)
www.youtube.com/watch?v=wY11oImXrOg

Eating Too Much Salt? 4 Ways to Cut Back ….Gradually (1:19)
www.youtube.com/watch?v=OG8RCuZNbeA&t=3s

Remember the Nutrients to Get Less Of

Get less than 100% DV of these each day: • Saturated Fat • Added Sugars • Sodium

Nutrients to get less of should be limited as part of a healthy eating pattern that consists of a variety of food and beverages that stay within your calorie needs. For example, when a food you like is high in a nutrient you want to get less of, you can balance it with foods that are low in that nutrient at other times of the day.

BACKGROUND INFORMATION

PART 1

Understanding Carbohydrates

Carbohydrates include total sugars (naturally present and added), dietary fiber, and sugar alcohols. The Daily Value for total carbohydrates is 275 grams (based on a 2,000-calorie daily diet). Although most people consume enough carbohydrates, many people consume too much added sugars and refined starches and not enough fiber.

About Sugars

In terms of their chemical structure, sugars are the smallest and simplest type of carbohydrate. They are easily digested and absorbed by the body. There are two main types of sugars, and both types are found in many foods.

Sugars that are composed of one molecule are called monosaccharides. They are small enough to be absorbed directly into the bloodstream. They include:

- Fructose
- Glucose
- Galactose

Sugars that contain two molecules of sugar linked together are called disaccharides. They are broken down in your body into single sugars. They include:

- Sucrose (table sugar) = glucose + fructose
- Lactose (milk sugar) = glucose + galactose
- Maltose (malt sugar) = glucose + glucose

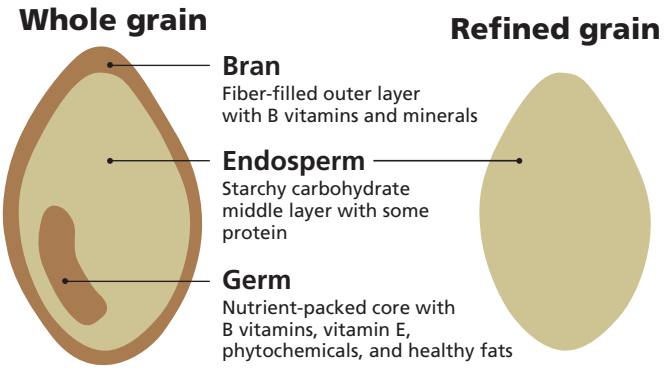
Focus on Starches

Starches are made up of many **glucose** molecules linked together into long chains. Starches are found naturally in foods such as vegetables (e.g., potatoes, carrots), grains (e.g., brown rice, oats, wheat, barley, corn), and beans and peas (e.g., kidney beans, garbanzo beans, lentils, split peas). Refined starches (e.g., corn starch) can be added to foods as thickeners and stabilizers during processing or cooking.

About Dietary Fiber

Fiber, or dietary fiber, is a type of carbohydrate made up of many sugar molecules linked together. But unlike other carbohydrates (such as starch), dietary fiber is bound together in such a way that it cannot be readily digested in the small intestine. Dietary fiber is found in bran, whole grain foods (such as whole grain breads, whole grain cereals, whole grain pasta, and brown rice), fruits, vegetables, beans, peas, and lentils, and nuts and seeds. The *Dietary Guidelines for Americans* recommends that at least half of total grains consumed be whole grains and that people limit refined starches and refined grains.

Whole Versus Refined Grain



DID YOU KNOW?

Sugar alcohols are a type of carbohydrate that chemically have characteristics of both sugars and alcohols but are not completely absorbed by the body; they provide a sweet taste with fewer calories per gram than sugar. They are found naturally in small amounts in a variety of fruits and vegetables and are also commercially produced and added as reduced-calorie sweeteners to certain foods such as chewing gum, baked goods, desserts, and frostings. They may be used in foods that are labeled "sugar-free" or "no added sugar".

TIPS The ingredient statement on the label shows the ingredients in descending order by weight: the closer they are to the beginning of the list, the more of that ingredient is in the food.

BACKGROUND INFORMATION

Sugars: A Closer Look

Where Are They Found?

Sugars are found naturally in many nutritious foods and beverages. They are also *added* to some foods and beverages during processing and preparation, or they can be consumed separately.

Naturally occurring sugars are found in a variety of foods, including:

- Fruits (fresh, frozen, dried or canned in 100% fruit juices)
- 100% fruit juices
- Dairy products
- Vegetables

Added sugars are often found in such foods as:

- Baked goods (such as cakes, cookies, pastries, and pies)
- Desserts (such as ice cream and puddings)
- Salad dressings, sauces, spreads, condiments, and gravies
- Sugar-sweetened beverages (such as energy drinks, fruit drinks, regular soda, sports drinks, sweetened waters, and sweetened coffee and tea)
- Sweetened breakfast cereal
- Sweets (such as candies, jams, sweet toppings, and syrups)
- Single-ingredient sugars (such as table sugar, maple syrup, or honey)

What Sugars Do

Sugars provide calories and supply energy for the body. Each gram of sugar provides 4 calories. Your body breaks down sugars into glucose. Glucose in the blood (often referred to as blood sugar) is the primary energy source for your cells, tissues, and organs. Your body can use this glucose immediately, or it can store small amounts in your liver and muscles for later use.

Sugars (both naturally occurring and those added to foods and beverages) increase the risk of cavities (also known as "dental caries"). In addition, consuming high levels of added sugars from processed foods and beverages that contain few nutrients can lead to eating excess calories with little nutritional benefit. The *Dietary Guidelines for Americans* recommends limiting calories from added sugars to less than 10% of total calories per day.

Identifying Added Sugars

The amount of Total Sugars listed on the Nutrition Facts label includes those that occur naturally in the food or beverage as well as any Added Sugars. Added Sugars, listed in both grams and as a percent Daily Value, are required on most Nutrition Facts labels. They are included as part of the "Total Sugars" declaration, not as more sugars.

Added sugars are used to sweeten, preserve, or improve certain functional attributes of food, such as viscosity, texture, color, or browning capability. Added sugars are included in the ingredient list on food and beverage packages.

Some examples of added sugars are:

- brown sugar
- corn sweetener
- corn syrup
- dextrose
- fructose sweetener
- glucose
- high fructose corn syrup
- honey
- invert sugar
- lactose
- maltose
- malt syrup
- maple syrup
- molasses
- pancake syrup
- raw sugar
- sucrose
- turbinado sugar

ACTIVITY 1: ADDED SUGARS IN BEVERAGES

TIME One 45-Minute Class Period

ACTIVITY AT A GLANCE

In this activity, students will study the amount of added sugars in different beverages. Upon completion, students will gain an understanding of how much added sugars are in many of the drinks they consume. This will lead to an increase in the students' awareness of how consumption of sugar-sweetened beverages can impact overall diet and calorie intake.

TIME TO TUNE IN

Added Sugar on the Food Label (1:35)
www.youtube.com/watch?v=PygjyyWvqhU

Hy-Vee KidsFit at Home – Rethink Your Drink (8:37)
www.youtube.com/watch?v=eu9BgqCqIa8

PUBLIC HEALTH CONNECTION

Beverages contribute substantially to overall calorie intake for most people in the U.S. Although they provide needed water, many beverages add calories to the diet without providing important nutrients. Beverages should be chosen wisely, so they contribute nutrients to your diet, while allowing you to stay within your calorie limits. In the U.S., people ages 2 years and older consume an average of about 400 calories per day as beverages.

As the amount of saturated fats and/or added sugars increases in the diet, it can be more difficult to also eat foods with sufficient dietary fiber and important vitamins and minerals, and still stay within calorie limits. Although the consumption of saturated fats and added sugars among children and adolescents has decreased in recent years, intakes continue to exceed recommended limits. Sugar-sweetened beverages are the largest source of calories from added sugars among children and adolescents. Added sugars account on average for almost 270 calories, or more than 13 percent of total calories per day per person in the U.S. population. Intakes of added sugars as a percent of total calories consumed in one day are particularly high among children, adolescents, and young adults.

The *Dietary Guidelines for Americans* recommends that added sugars be limited to less than 10 percent of calories per day. When added sugars in foods and beverages exceed 10 percent of calories, a healthy dietary pattern within calories limits is very difficult to achieve. Most Americans have less than 8 percent of calories available for added sugars, including the added sugars already part of a healthy dietary pattern.

ADDED SUGARS IN BEVERAGES

GETTING STARTED

MATERIALS

- Beverages or empty beverage containers; images of beverages with their Nutrition Facts labels displayed are also appropriate
- Resealable, quart-sized, plastic bags
- Table sugar
- Measuring teaspoon
- Scale that measures in grams
- **How Much Added Sugar Is In Your Beverage?** worksheet
- FDA Fact Sheets:

  Total and Added Sugars: www.accessdata.fda.gov/scripts/interactivenutritionfactslabel/assets/InteractiveNFL_Total&AddedSugars_October2021.pdf

  Total Carbohydrates: www.accessdata.fda.gov/scripts/interactivenutritionfactslabel/assets/InteractiveNFL_TotalCarbohydrate_October2021.pdf

ADVANCE PREPARATION

1. Gather the beverages or beverage containers to include a variety of sugar-sweetened beverages as well as one sample of bottled water and one sample of diet (sugar-free) soda, each with 0 grams of Added Sugars. The worksheet includes space for 12 beverages, however, use as many or few as time allows.

   Suggested beverages:
   - Bottle of water
   - 12 fl. oz. can of regular soda
   - 20 fl. oz. bottle of regular soda
   - Oversized container of regular soda
   - 20 fl. oz. bottle of diet soda
   - 13.7 fl. oz. of chilled coffee drink
   - Various juices (mixed vegetable juices, green juices, citrus juices)
   - Energy drink
   - Lemonade or ice tea drink
   - Sports drink
   - Chocolate-sweetened milk beverage
   - Yogurt smoothie
   - Milkshake

TIP Depending on the size of the class, you can do this activity as a demonstration, as a whole group, or split the class into groups and give each group their own set of materials.

2. Create and label resealable plastic bags with an amount of sugar that corresponds with the added sugars in each beverage. Table sugar is used to represent all of the different added sugars that might be found in the beverage.

   Look at the Nutrition Facts label on each beverage container to find the amount of Added Sugars (in grams) in one serving. If the container has more than one serving, multiply the number of servings by the amount of Added Sugars because this activity targets the amount of Added Sugars in the entire container.

   Number of servings X Added Sugars (grams) = Added Sugars (grams) in container

   One teaspoon of sugar has a mass of 4.2 grams. To determine the number of teaspoons of added sugars in the entire container, divide the number of grams of added sugars in the entire container by 4.2 grams/teaspoon.

   $$\frac{\text{Added Sugars (grams) in container}}{\text{4.2 grams/teaspoon}} = \text{Teaspoons of Added Sugars in container}$$

   If you have a metric scale, measure the grams of Added Sugars in the beverages.

3. Number the beverage containers.

4. Label each bag of sugar with a letter that corresponds to a numbered beverage container.

   Divide the class into small groups of 2 or 3.

   Make copies of the **How Much Added Sugar Is In Your Beverage**? worksheet for each group.

   Groups should have access to the FDA Fact Sheets: **Total and Added Sugars** and **Total Carbohydrates:** Interactive Nutrition Facts Label.

Although 100% fruit juice without added sugars can be part of a healthy dietary pattern, it is lower in dietary fiber than whole fruit. Dietary fiber is a dietary component of public health concern. At least half of the recommended amount of fruit should come from whole fruit, rather than 100% juice.

ADDED SUGARS IN BEVERAGES

INTRODUCTION

What students drink is important to their overall health and wellness. In this activity, students will become aware of the amount of added sugars in their beverages, which will help them learn how to make better beverage choices.

STUDENT PROCEDURE

What are your favorite beverages? Have one of the members in your group keep a list of your suggestions. In this activity, you will look at the added sugars in beverages. The amount of Total Sugars on the label includes both the sugars that are naturally present in the beverage plus sugars added during the processing of the beverage. Review your beverage list and identify which ones you think are high or low in added sugars. Discuss your ideas with the rest of your class.

1. Watch these two videos that introduce Total Sugars and Added Sugars:

   Added Sugar on the Food Label
   www.youtube.com/watch?v=PygjyyWvqhU

   Hy-Vee KidsFit at Home – Rethink Your Drink
   www.youtube.com/watch?v=eu9BgqCqIa8

2. Now that you have some background information about added sugars in beverages, you will do an activity to help you visualize how much added sugar is in various beverages. You will look at a variety of beverage containers/images and at bags that contain amounts of sugar that correspond with the amount of added sugars in each of those beverage containers. You will determine which of the bags of sugar you think represents the amount of Added Sugars in each beverage.

3. Write the name of each beverage in the left column of the data table. Select the bag of sugar that represents the amount of Added Sugars you think are in the beverage and record the letter on that bag in the column labeled: **Sugar Bag.**

4. When all groups have finished matching their beverages with sugar bags, discuss the results on your data table with the class.

Sample Beverages (showing Added Sugars and Total Calories)

Drink (12-ounce serving)	Total Calories	Added Sugars (Grams)	Added Sugars (Teaspoons)
Plain Water	0	0	0
Unsweetened Tea	0	0	0
Sports Drinks	97	20	5
Cafe Mocha	290	21	5
Chai Tea Latte	180	23	5.5
Sweetened Tea	115	29	7
Regular Soda	156	37	9
Lemonade	171	43	10
Fruit Drinks	238	59	14

Data Source: U.S. Department of Agriculture, Agricultural Research Service. 2020. *USDA Food and Nutrient Database for Dietary Studies and USDA Food Patterns Equivalents Database 2017-2018.* Food Surveys Research Group Home Page, ars.usda.gov/nea/bhnrc/fsrg.

5. Look at the Nutrition Facts labels for each beverage to see the grams of Total Sugars and Added Sugars on the labels. Record this information on your data table. Correct any wrong answers on your sheet.
   - Which beverages had the most Added Sugars?
   - Which findings surprised your group the most?
   - In which beverages were the amounts of Total Sugars and Added Sugars the same?

6. Read the **Total and Added Sugars** and **Total Carbohydrates** Fact Sheets and review the previous videos, *Added Sugar on the Food Label* and *Hy-Vee KidsFit at Home – Rethink Your Drink*, to answer the questions on your worksheet.

7. When all groups have completed their responses to the questions, review the answers with your class.

ADDED SUGARS IN BEVERAGES

REVIEW

Many people don't take into consideration the amount of added sugars they consume when they drink sugary beverages because the sugar is not visible. This activity provided a strong visual illustration (bags of sugar) of the amount of added sugars in various beverages.

When students become aware of the sugar in beverages, they can make better beverage choices.

SUMMARY

Choosing beverages carefully is just as important as choosing foods wisely. Many beverages contain added sugars. Use the Nutrition Facts label to help you determine the added sugars a beverage contains and help you make better beverage choices.

EXTENSIONS

Students could do one or more of the following activities:

1. Keep a beverage diary that includes a list of the beverages you drink and the nutrients obtained from the beverages.

2. Create posters to advertise healthy beverages.

   Review beverage advertisements and packaging; identify the marketing strategies used in the advertisements and packaging and how they influence beverage choices.

3. Look at the Nutrition Facts labels for beverages specific to your area. For example, sweet tea is a popular beverage in the southern states. Measure the added sugars in different kinds (brands) of sweet tea; compare the total sugars in these beverages with the total sugars in the beverages in the activity.

4. Use the Nutrition Facts labels on a variety of beverages to look at the other nutrients found in them. Discuss whether any of the beverages are nutrient dense for any of these nutrients.

RESOURCES

- *Added Sugar on the Food Label*
  youtu.be/PygjyyWvqhU
- *FoodData Central*
  fdc.nal.usda.gov
- *How Much Sugar Is In Our Drinks?*
  www.youtube.com/watch?v=wsMjLBL6aJE
- *Hy-Vee KidsFit at Home – Rethink Your Drink*
  www.youtube.com/watch?v=eu9BgqCqIa8
- *Interactive Nutrition Facts Label*
  Interactive Nutrition Facts Label (fda.gov)
- *My Drink Has How Much Sugar?*
  www.youtube.com/watch?v=ATIZkYp3EYM
- *The truth behind sugar-filled beverages*
  blogs.bcm.edu/2019/04/16/the-truth-behind-sugar-filled-beverages
- *Total and Added Sugars*
  www.accessdata.fda.gov/scripts/interactivenutritionfactslabel/assets/InteractiveNFL_Total&AddedSugars_October2021.pdf
- *Total Carbohydrates*
  www.accessdata.fda.gov/scripts/interactivenutritionfactslabel/assets/InteractiveNFL_TotalCarbohydrate_October2021.pdf

UP NEXT

Now that you know about beverages that contain surprisingly large amounts of added sugars, let's look at everyday snacks to see how much sodium they really contain.

STUDENT WORKSHEET

ACTIVITY 1: HOW MUCH ADDED SUGAR IS IN YOUR BEVERAGE?

Name _____ Date _____ Class/Hour _____

This activity will help you to visualize how much sugar is in a beverage.

1. Make a list of your group's top 6 favorite beverages and then respond to these questions:

a. Which beverages on your list do you think have the most added sugars?

_____

b. Which do you think have the least added sugars?

_____

2. Watch these two videos that introduce Total Sugars and Added Sugars:

Added Sugar on the Food Label www.youtube.com/watch?v=PygjyyWvqhU

Hy-Vee KidsFit at Home – Rethink Your Drink www.youtube.com/watch?v=eu9BgqCqIa8.

3. Your teacher has prepared some numbered beverage containers and bags with various amounts of sugar that represent the amount of added sugars in the various beverages. As you look at the containers and bags of sugar, match the bags of sugar you think represents the amount of added sugars in each beverage.

SUGAR IN BEVERAGES DATA TABLE

BEVERAGE	SUGAR BAG (letter)	GRAMS OF ADDED SUGARS	GRAMS OF TOTAL SUGARS	PERCENT OF TOTAL SUGARS FROM ADDED SUGARS (i.e., ADDED SUGARS/TOTAL SUGARS x 100%)
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				

continued on next page

STUDENT WORKSHEET

HOW MUCH ADDED SUGAR IS IN YOUR BEVERAGE? (CONTINUED)

4. Look at the Nutrition Facts labels for the beverages in this activity and record the Total Sugars and Added Sugars for each on your Worksheet.

In which beverages were the amounts of Total Sugars and Added Sugars the same?

_____

5. Review the completed data table with your class to learn how well your group matched the beverages with the bags of sugar, and make corrections as needed.

a. List which beverages had the most Added Sugars:

_____

b. Which findings surprised your group the most?

_____

6. Read the **Total and Added Sugars** and **Total Carbohydrates** Fact Sheets and review the videos, *Added Sugar on the Food Label* and *Hy-Vee KidsFit at Home – Rethink Your Drink*, to answer the following questions.

a. Sugar belongs to a group of chemical compounds called carbohydrates. What are the different kinds of carbohydrates that are used by your body?

_____

b. Why are carbohydrates important for your health?

_____

c. The calories in sugary beverages are said to be "empty calories." What does this mean?

_____

d. What is the difference between naturally occurring sugars and Added Sugars?

_____

e. For a 2,000-calorie daily diet, the Daily Value for Added Sugars is 50 grams. For a person with this diet, which of the drinks in this activity would you recommend and why?

_____

f. Why is milk called a "nutrient dense" food?

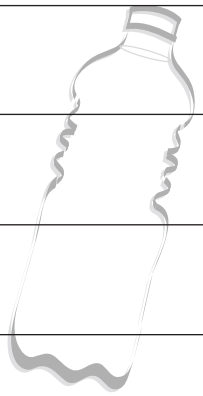
_____

g. Why is it important to read the labels on the foods and beverages you consume?

_____

h. What are some ways to limit your added sugars intake?

_____



7. When all groups have completed their responses to the questions, review the answers with the class.

BACKGROUND INFORMATION

PART 2

All About Sodium

Sodium is an essential nutrient primarily consumed as salt (sodium chloride). Sodium maintains a balance of body fluids, keeps muscles and nerves running smoothly, and helps certain organs work properly.

As a food ingredient, sodium has multiple uses that include curing meat, baking, thickening, retaining moisture, enhancing flavor (including the flavor of other ingredients, like making sweets taste "sweeter"), and as a preservative. Salt is one of the oldest forms of food preservation; people have been salting (and drying) meat to preserve it for thousands of years.

Salt and Sodium Defined

The words "salt" and "sodium" are often used interchangeably, but they do not mean the same thing. **Salt** (also known by its chemical name *sodium chloride*) is a crystal-like compound that is abundant in nature and is used to flavor and preserve food. **Sodium** is a mineral and one of the chemical elements found in salt.

Most people in the U.S. eat too much salt. Salt contains sodium, and too much sodium can raise blood pressure, which can have serious health consequences if not treated.

- The daily recommendation for sodium is less than 2,300 mg per day (and less than 1,800 mg per day for children ages 9 through 13).
- Americans consume on average 3,400 milligrams (mg) of sodium per day, which is nearly 50% more than the 2,300 mg limit recommended by federal guidelines for people 14 years and older. Recommended limits for children 13 and younger are even lower.

The **Nutrition Facts label** on food and beverage packages is a useful tool to make healthy dietary choices and monitor how much sodium is in a food. Many restaurant websites also have nutrient information for their menu items.

FDA requires nutrition information about a food that has a nutrient claim, such as "low sodium." FDA also requires certain nutrition information, including information on sodium and many other nutrients, to be available upon request for standard menu items in many restaurants and similar retail food establishments.

Most of the sodium consumed by Americans comes from the following foods:

- Deli meat sandwiches
- Pizza
- Burritos and tacos
- Soups
- Savory snacks (such as chips, crackers, and popcorn)
- Poultry
- Pasta dishes
- Burgers
- Egg dishes and omelets

NOTE: Keep in mind that nutrition sources may vary. Although scientists don't always agree, they must have data to support what they report. The key point to remember is that sodium comes mostly from processed foods and restaurant foods, not from what is added at the table.

DID YOU KNOW?

Salt

Salt is the main source of sodium for most people, but some common food additives like monosodium glutamate (MSG), sodium bicarbonate (baking soda), sodium nitrite, and sodium benzoate, also contain sodium and contribute (in lesser amounts) to the total amount of "sodium" listed on the Nutrition Facts label.

Surprisingly, some foods that don't taste salty can still be high in sodium, so don't use taste as a guide. For example, while some foods that are high in sodium taste salty – like pickles and soy sauce – there are also many foods, like cereals and pastries, that contain sodium but don't taste salty. Some foods that you may eat several times a day, such as breads, can add up to a lot of sodium even though an individual serving may not be high in sodium.

Sodium chloride, or salt, is approximately 40% sodium. Understand just how much sodium is in table salt and in food so you can take measures to control your intake.

1 teaspoon salt = 2,300 mg sodium

BACKGROUND INFORMATION

Check the Label!

High levels of sodium may seem "hidden" in packaged food, particularly when a food doesn't "taste" salty, but sodium is not hidden on the Nutrition Facts label! All you need to do is read the label.

- The Nutrition Facts label lists the Percent Daily Value (%DV) of sodium in one serving of a food.
- The DV for sodium is 2,300 mg, and less for people under 14 years old.
- One package of food may often contain more than one serving. So, if a package contains two servings and you eat the entire package, you have consumed twice the amount of sodium listed on the label (in other words, you've consumed double the %DV).

Use the %DV to compare sodium in different products. The %DV tells you whether a food contributes a little or a lot to your total daily diet.

- 5% DV or less of sodium per serving is low.
- 20% DV or more of sodium per serving is high.

Check the Package for Nutrient Claims

You can also check the food package to quickly identify foods that may contain less sodium. For example, look for foods with such claims as:

Salt/Sodium-Free	Less than 5 mg of sodium per serving
Very Low Sodium	35 mg of sodium or less per serving
Low Sodium	140 mg of sodium or less per serving
Reduced Sodium	At least 25 percent less sodium than the regular product
Light in Sodium or Lightly Salted	At least 50 percent less sodium than the regular product
No-Salt-Added or Unsalted	No salt is added during processing – but beware, these products may not be salt/sodium-free unless stated

DID YOU KNOW?

POTASSIUM CAN HELP

Research shows that increasing potassium intake can help manage blood pressure. Examples of foods higher in potassium include:

- Beans
- Dairy products (e.g., milk and yogurt)
- Fruits (e.g., apricots, bananas, kiwifruit, cantaloupe, and grapefruit)
- Juices (e.g., carrot and other vegetables juices, orange, pomegranate, and prune)
- Seafood (e.g., clams, pollock, and trout)
- Tomato products
- Vegetables (e.g., potatoes, sweet potatoes, beet greens, and spinach)

ACTIVITY 2: SODIUM IN SNACK FOODS

TIME One 45-minute class period

ACTIVITY AT A GLANCE

Students will look at the amount of sodium in their snacks, learn about the recommended amount of sodium they should consume on a daily basis, and how they can control the amount consumed.

TIME TO TUNE IN

Sodium on the Food Label (1:09)
www.youtube.com/watch?v=wY11olmXrOg

Eating Too Much Salt? 4 Ways to Cut Back ....Gradually (1:19)
www.youtube.com/watch?v=OG8RCuZNbeA

GETTING STARTED

MATERIALS

- **Snack Food** Cards (page 49)
- Snack food container/packages or images of snack foods that show the Nutrition Facts label
- Table salt
- Milligram scale
- Resealable plastic bags – 2 inches x 3 inches
- **Sodium in Snack Foods** worksheet
- Copies of FDA's Fact Sheet, **Sodium in Your Diet – Use the Nutrition Facts Label and Reduce Your Intake:** www.fda.gov/media/84261/download

TIP Check out *Nutrition in Action* on page 45 for Sodium and Percent Daily Value tips. It makes a great handout!

SODIUM IN SNACK FOODS

ADVANCE PREPARATION

1. Gather snack food packages/containers or images of snack foods that show the Nutrition Facts labels.

   The snack food examples in this activity are based on a single serving.

   - Banana (7 – 7.9 inches long); contains 1 mg sodium
   - Diet soda (12 ounce can); contains 40 mg sodium
   - Baked potato chips (1 ounce bag); contains 160 mg sodium
   - Regular potato chips (1 ounce bag); contains 170 mg sodium
   - Crunchy cheese snack (1 ounce bag); contains 250 mg sodium
   - Large fries (5.3 ounces); contains 400 mg sodium
   - Pretzels (1 ounce bag); contains 450 mg sodium
   - Vegetable juice (11.5 ounce can); contains 920 mg sodium
   - Sunflower seeds, kernels with salt on shells (1 ounce); contains 1,910 mg sodium

   Also include:

   - Recommended limit for sodium per day for those 14 and older: 2,300 mg
   - Average American intake of sodium per day: 3,440 mg
   - Amount of sodium needed by body per day: 1,500 mg

2. In this activity, table salt represents the amount of sodium in one serving of a snack or in an item that relates to sodium in a person's diet. To prepare resealable bags for each of the items: write the number of milligrams of sodium for each item on a bag. Use a milligram scale to measure the number of milligrams of sodium (salt) for each item and add the salt to one of the bags. Prepare a set of salt bags for each group of students.

3. Use USDA's FoodData Central website to find information on the Nutrition Facts label: fdc.nal.usda.gov

4. Prepare a set of **Snack Food** Cards and print a **Sodium in Snack Foods** worksheet for each group of students.

5. Divide class into small groups of 2 or 3.

PUBLIC HEALTH CONNECTION

According to the ***Dietary Guidelines for Americans***, reducing sodium intake is associated with a decreased risk of developing high blood pressure (hypertension) and cardiovascular disease. In a recent study, the CDC found that about 1 in 25 young people between 12 and 19 years of age has hypertension, and 1 in 10 has elevated blood pressure (previously called "prehypertension"). "Elevated blood pressure is above normal or ideal, but it is not high enough to be classified as "high." Hypertension is a known risk factor for heart disease, which kills about 655,000 Americans each year. Eating a high sodium, low potassium diet increases the risk for hypertension.

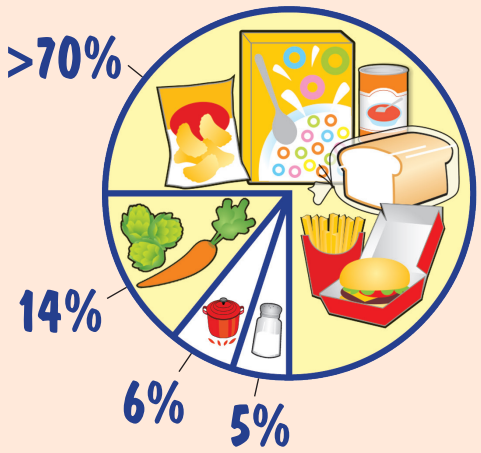
Source for CDC youth statistics:
www.cdc.gov/bloodpressure/youth.htm
Source for updated heart disease mortality:
www.cdc.gov/heartdisease/facts.htm

The Surprising Truth about Sodium Consumption

Despite what many people think, use of the salt shaker is not the main cause of too much sodium in your diet.

Americans' sodium intake breaks down like this:

- **Over 70%** comes from processed and packaged foods
- **14%** is naturally occurring in foods
  Source: www.heart.org/en/healthy-living/healthy-eating/eat-smart/sodium/hold-the-salt-infographic
- **6%** comes from adding salt to food while cooking and preparing food at home
- **5%** is added at the table



SODIUM IN SNACK FOODS

INTRODUCTION

Most Americans consume more sodium than they need. Sodium is primarily consumed as salt (sodium chloride). You have been studying the Nutrition Facts label; one of the nutrients on that label is sodium.

What is sodium and why do you think sodium is included on the label?

STUDENT PROCEDURE

1. Watch the video, *Sodium on the Food Label* www.youtube.com/watch?v=wY11olmXrOg and read the FDA Fact Sheet, **Sodium in Your Diet**; then answer the questions on your worksheet.

2. Look at the Nutrition Facts label on the first page of the **Sodium in Your Diet** Fact Sheet. How much sodium is in the food represented on the label? Can you visualize what 430 milligrams might look like? A measuring teaspoon of salt has a mass of 2,300 milligrams (mg).

3. Savory snacks were listed on the **Sodium in Your Diet** Fact Sheet as one of the food categories that contributes to about 40% of the sodium you eat. Make a list of your favorite snacks. Share your list with the rest of the class.

   Circle the snacks you think contain the most sodium. Remember that a snack does not need to taste salty to contain a lot of sodium.

4. Your group will work with a set of **Snack Food** cards that contain pictures of snacks, or information about the amount of sodium in a person's diet. You will also have a set of bags of salt that represent the amount of sodium in the item on the cards. Your challenge is to match the picture on the card with the bag you think contains the amount of salt in each picture on the cards. When your group has finished matching all of the pictures with the corresponding salt bags, record the name of the item in the column labeled **Our Answer** on the **Sodium in Snack Foods Data Table.**

   When everyone has completed matching their salt bags with the pictures on the cards, review your answers with the class. If you had any incorrect responses, replace them with the correct answer on the data table.

5. When all of the groups have recorded the correct matches, complete the questions on your worksheet. You can review the video, *Sodium on the Food Label* www.youtube.com/watch?v=wY11olmXrOg and the **Sodium in Your Diet** Fact Sheet for help with the answers.

6. Watch the video, *Eating Too Much Salt? 4 Ways to Cut Back…Gradually* www.youtube.com/watch?v=OG8RCuZNbeA and then answer the question on your worksheet.

7. Now look at your original list of snacks and discuss which would be the most healthy and why.

REVIEW

Sodium is an essential nutrient; Americans often get too much sodium by eating too much salt (sodium chloride). People should be mindful of their sodium intake to preserve a healthy heart and optimal health. We should read labels for the amount of sodium in the foods we eat and try to eat foods that are low in sodium.

NUTRITION IN ACTION

Start the Shake-Down: Easy Tips for Cutting Sodium

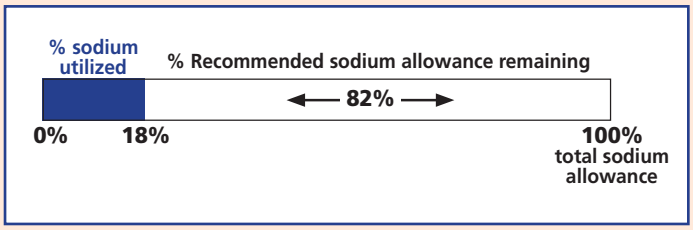
Learning about sodium in foods and exploring new ways to prepare foods will help you achieve your sodium goal. If you follow these tips to reduce the amount of sodium you are consuming, your "taste" for sodium will gradually decrease over time. Eventually, you probably won't even miss it!

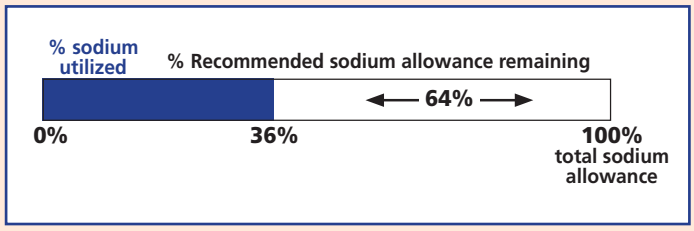
1. Read the Nutrition Facts label to see how much sodium is in the foods you want to eat. Most people should consume less than 100% of the Daily Value of sodium each day. Check the label for lower sodium choices and compare sodium in different brands of food products, such as frozen meals, packaged soups, breads, dressings/sauces, and snack foods. Choose those with lower sodium.
2. Prepare your own food when you can. Limit packaged sauces, mixes, and "instant" products, including flavored rice, instant noodles, and ready-made pasta whenever possible, and limit the amount of salt you add to foods when cooking, baking, or at the table.
3. Add flavor without adding sodium. Use herbs and spices instead of salt to add flavor to your foods. Try rosemary, oregano, basil, curry powder, cayenne pepper, ginger, fresh garlic or garlic powder (not garlic salt), black or red pepper, vinegar or lemon juice, and no-salt seasoning blends.
4. Get fresh foods when you can. Buy fresh or frozen meat and poultry, rather than canned, smoked, or processed meat and poultry such as luncheon meats and sausages. Also, check the label on packages of fresh meat and poultry to see if salt water or saline has been added.
5. Watch your veggies. Buy fresh, frozen (no sauce or seasoning), or low sodium or no-salt-added canned vegetables.
6. Give sodium the "rinse." Rinse sodium-containing canned foods, such as tuna, vegetables, and beans before eating. This removes some of the sodium.
7. "Un-salt" your snacks. Choose nuts, seeds or snack products (such as chips and pretzels) that are marked "low sodium" or "no salt added" – or choose carrot or celery sticks instead.
8. Consider your condiments. Sodium in condiments can add up. Choose light or reduced sodium condiments, add oil and vinegar to salads rather than bottled dressings, and use only a small amount of seasoning from flavoring packets instead of the entire packet.
9. Make lower-sodium choices at restaurants. Request that your meal be prepared without salt and that sauces and salad dressings be served "on the side"—and then use less of them.

A Quick Guide to %DV

- **5% DV or less per serving is low** for all nutrients, including those you want to *limit* (such as saturated fat, cholesterol, and sodium), as well as those that you want to consume in greater amounts (such as dietary fiber and calcium).
- **20% DV or more per serving is high** for all nutrients.

Balancing daily needs example:
If the label shows that the sodium in one serving is 18% DV, is that amount contributing a lot or a little to the Daily Value for sodium? What if you ate the whole package (for example, two servings)? You would then double that amount, eating 36% of the Daily Value for sodium. That means you should aim to get less than 64% DV (100%-36%=64%) from all of the other foods you eat that day—snacks and drinks included.





SODIUM IN SNACK FOODS

EXTENSIONS

Students could do one or more of the following activities:

1. Look at the saturated fat (grams) and the number of calories, as well as the amount of sodium and added sugars in each of the snack foods from the activity. Use these four sets of data to determine the most nutrient-dense foods (healthy snacks). Nutrient-dense foods provide vitamins, minerals, and other health-promoting components and have no or little added sugars, saturated fat, and sodium.

   One way to do this would be to:

   a) rank the foods from lowest to highest in the amount of sodium
   b) rank the foods from lowest to highest by the number of calories
   c) rank the foods from lowest to highest by saturated fat content.
   d) rank the foods from lowest to highest by amount of Added Sugars.

   For example: look at one sample of vegetable juice with 60 calories, no saturated fat, and 920 mg of sodium (40% DV). This would not be a good choice. If you consider a banana (with 105 calories, 1 mg of sodium, and 0 grams of saturated fat), then this would be a better choice. Create a data table with your findings.

2. Research the various claims that can be made about the amount of sodium in prepared foods, such as Low Sodium which means the product has to have 140 mg or less of sodium in one serving. Make a chart of the claims, what they mean, and give an example of a food with that claim.

SUMMARY

Sodium is an essential nutrient, but most Americans consume too much sodium. Be mindful of salt intake to preserve a healthy heart and optimal health.

- Eat foods that are good sources of potassium to improve health.
- Read the Nutrition Fact label to compare foods and determine the amount of sodium in the foods you eat.
- Choose foods with less sodium while shopping at the grocery store.

UP NEXT

Now that you know more about nutrients to get less of, let's plan a meal and pay attention to the nutrients to get more of.

RESOURCES

- *30 Foods High in Sodium and What to Eat Instead*
  www.healthline.com/nutrition/foods-high-in-sodium
- *Be Salt Smart*
  www.myplate.gov/tip-sheet/test-be-salt-smart
- *Cut Down on Sodium*
  www.dietaryguidelines.gov/sites/default/files/2021-11/DGA_SodiumFactSheet_2021-05-26_508c.pdf
- *Eating Too Much Salt? 4 Ways to Cut Back ….Gradually*
  www.youtube.com/watch?v=OG8RCuZNbeA
- *FoodData Central*
  fdc.nal.usda.gov.
- *Interactive Nutrition Facts Label*
  www.accessdata.fda.gov/scripts/interactivenutritionfactslabel
- *Sodium in Your Diet*
  www.fda.gov/food/nutrition-education-resources-materials/sodium-your-diet
- *Sodium on the Food Label*
  www.youtube.com/watch?v=wY11olmXrOg

STUDENT WORKSHEET

ACTIVITY 2: SODIUM IN SNACK FOODS

Name _____ Date _____ Class/Hour _____

What is sodium and why do you think sodium is included in the list of nutrients on the Nutrition Facts label?

1. Watch the video, *Sodium on the Food Label* www.youtube.com/watch?v=wY11olmXrOg and read the FDA Facts Sheet **Sodium in Your Diet** and then answer the following questions:

a. According to the Fact Sheet what is sodium? _____

_____

b. How does this definition compare with your group's definition? _____

_____

c. How is sodium different from salt? _____

_____

d. Why is sodium called an essential nutrient? _____

_____

e. When you look at the Nutrition Facts label on the **Sodium in Your Diet** Fact Sheet, you see there are 430 mg (milligrams) of sodium in that food. If you could visualize 430 milligrams, what do you think it might look like?

_____

f. One teaspoon of salt contains 2,300 mg of sodium. What is the volume for salt (measured by teaspoon) with 430 mg of sodium, and how does this compare with your previous visualization for 430 mg of sodium?

_____

_____

2. In the **Sodium in Your Diet** Fact Sheet, savory snacks are listed as one of the food categories that contributes about 40% of the sodium you eat. Make a list of your group's favorite snacks.

a. _____

b. _____

c. _____

d. _____

e. _____

f. Which snacks on your list do you think contain the most sodium? Remember, a snack does not need to taste salty to contain a lot of sodium.

_____

3. Your **Snack Food** cards show pictures of snacks or information about the amount of sodium in a person's diet. Your teacher has shown you a set of bags of salt that represent the amount of sodium in the items on the cards. Match the picture on the card with the bag of salt that you think represents the amount of sodium in the product in the picture. When you finish matching all of the pictures with bags of salt, record the name of the item on the card in the column beside the amount of salt listed on the **Sodium in Snack Foods Data Table.**

continued on next page

STUDENT WORKSHEET

SODIUM IN SNACK FOODS (CONTINUED)

SODIUM IN SNACK FOODS DATA TABLE		
	SNACK FOOD	
MILLIGRAMS OF SODIUM	OUR ANSWER	CORRECT ANSWER
1 mg		
40 mg		
160 mg		
170 mg		
250 mg		
400 mg		
450 mg		
920 mg		
1,500 mg		
1,910 mg		
2,300 mg		
3,440 mg		

When everyone has completed their data tables, review your group's answers with the rest of the class. If you had any incorrect responses, write the correct answer in that column in the data table.

4. Complete the following questions. You can review the video, *Sodium on the Food Label* www.youtube.com/watch?v=wY11olmXrOg and the **Sodium in Your Diet** Fact Sheet.

a. What did you find surprising about the snack foods? _____

_____

b. How can eating foods high in sodium affect your health? _____

_____

c. How much sodium does the body need in order to function each day? _____

d. How much sodium should we consume daily? _____

e. What is the average daily intake of sodium by Americans over 2 years of age? _____

f. From where does most of the sodium in your diet come? _____

g. Name 3 foods that you eat that are high in sodium. _____

h. Name 3 foods that you eat that are low in sodium. _____

5. Watch the video, *Eating Too Much Salt? 4 Ways to Cut Back…Gradually* www.youtube.com/watch?v=OG8RCuZNbeA.

Describe 3 things you will do to reduce the amount of sodium that you eat. _____

_____

6. Refer to your list of snacks. Which do you think are the most healthy and why? _____

_____

A

Crunchy Cheese Snack
(1 ounce)

B

Vegetable Juice
(11.5 ounces)

C

Pretzels
(1 ounce)

D

Diet Soda
(12 ounces)

E

Medium Banana
(7 - 7.9 inches)

F

Regular Potato Chips
(1 ounce)

G

Baked Potato Chips
(1 ounce)

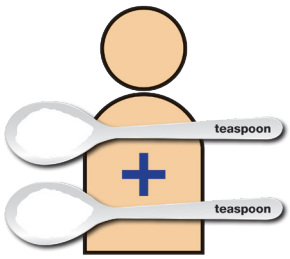
H

Sunflower Seeds
(1 ounce)

I

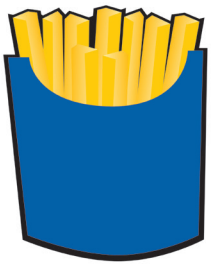
Recommended
Amount Per Day

J



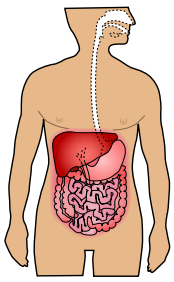
Average American
intake of Sodium

K



Large Fries
(5.3 ounces)

L



Amount of Sodium
Your Body Needs

MODULE 3 NUTRIENTS TO GET MORE OF

In this module, students will learn about nutrients to get more of, which foods and beverages are more nutrient-dense (better choices), and how to plan a meal using Nutrition Facts labels.

BACKGROUND INFORMATION

This section provides information to help choose nutrient-rich foods and beverages as part of a healthy overall daily diet plan.

ACTIVITY

Meal Planning engages students to read the Nutrition Facts label and use it to plan a healthy breakfast.

Time to Tune In
Reading the Food Label (2:14)
www.youtube.com/watch?v=s5zroZfMn0I

Remember the list of Nutrients to Get More Of

Get 100% DV of these on most days:

- Calcium
- Dietary Fiber
- Iron
- Potassium
- Vitamin D

Use the **Nutrition Facts label** as your tool to consume a healthful, **nutrient-dense** diet. The Nutrition Facts label includes the %DV for calcium, dietary fiber, iron, potassium, and vitamin D.

BACKGROUND INFORMATION

A healthy eating pattern is not a rigid "prescription." Rather, it's a range of options that can include cultural, ethnic, traditional, and personal preferences while also considering food cost and availability. There is flexibility in making choices to create a healthy eating pattern that meets nutrient needs and stays within calorie limits.

A healthy eating pattern focuses on nutrient-dense foods. Nutrient-dense foods provide vitamins, minerals, and other health-promoting components and have no or little added sugars, saturated fat, and sodium. A healthy dietary pattern consists of nutrient-dense forms of foods and beverages across all food groups, in recommended amounts, and within calorie limits.

Strategy for a Nutrient-Dense Diet

To achieve a nutrient-dense diet, eat a variety of foods and beverages to meet your calorie needs, including:

- fruits and vegetables
- whole grains
- fat-free or low-fat dairy products
- lean meats and poultry
- eggs
- seafood
- beans, peas, and lentils
- soy products, such as fortified soy beverages and yogurts
- unsalted nuts and seeds

Good Sources of Nutrients To Get More Of

Calcium	Dietary Fiber	Iron	Potassium	Vitamin D
• Canned seafood with bones (e.g., salmon and sardines) • Dairy products • Fortified cereals and juices • Fortified soy beverages • Green vegetables (e.g., kale, broccoli, and collard greens) • Tofu (made with calcium sulfate)	• Beans, peas, and lentils • Fruits and vegetables • Nuts and seeds • Wheat bran • Whole grains (such as whole oats, brown rice, popcorn, and quinoa) and foods made with whole grain ingredients	• Beans, peas, and lentils • Eggs • Fruits (e.g., raisins and cantaloupe) • Green vegetables (e.g., asparagus, beet greens, broccoli, spinach, and swiss chard) • Meat • Nuts • Organ meats (e.g., liver) • Poultry • Seafood (e.g., crab, clams, sardines, shrimp, and oysters) • Seeds • Soy products (e.g., tofu) • Whole grain, enriched, and fortified breads, cereals, pasta, and rice	• Beans • Dairy products (e.g., milk and yogurt) • Fruits (e.g., apricots, bananas, kiwifruit, cantaloupe, and grapefruit) • Juices (e.g., carrot and other vegetables juices, orange, pomegranate, and prune) • Seafood (e.g., clams, pollock, and trout) • Tomato products • Vegetables (e.g., potatoes, sweet potatoes, beet greens, and spinach)	• Beef liver • Egg yolks • Fish (e.g., flounder, herring, salmon, trout, and tuna) • Fish oil and cod liver oil • Fortified dairy products • Fortified orange juice • Fortified soy beverages • Fortified ready-to-eat cereals • Mushrooms

MEAL PLANNING ACTIVITY

TIME One 45-Minute Class Period

ACTIVITY AT A GLANCE

Students will plan a healthy meal – breakfast – using the Percent Daily Value (%DV), and will use the Nutrition Facts label to evaluate and compare foods as they plan their meals.

TIME TO TUNE IN

Reading the Food Label (2:14)

www.youtube.com/watch?v=s5zroZfMn0I

PUBLIC HEALTH CONNECTION

Nutrients to get more of:

- **Calcium** is important for blood clotting, bone and teeth formation, constriction and relaxation of blood vessels, hormone secretion, muscle contraction, and nervous system function.
- **Dietary fiber** can help increase frequency of bowel movements and can reduce the risk of developing cardiovascular disease and some cancers.
- **Iron** is important for energy production, growth and development, immune function, red blood cell formation, reproduction, and wound healing.
- Eating **potassium**-rich foods can help manage blood pressure. It is also important for transmission of nerve impulses and contraction of muscles.
- **Vitamin D** is important for bone health.

Other Important Vitamins:

- Vitamin A is important for growth and development, immune function, reproduction, red blood cell formation, skin and bone formation, and vision.
- Vitamin C is important as an antioxidant and for collagen and connective tissue formation, immune function, and wound healing.

MEAL PLANNING

GETTING STARTED

MATERIALS

- FDA's *Nutrition Information for Raw Fruits, Vegetables, and Seafood* (online or printed) www.fda.gov/food/food-labeling-nutrition/nutrition-information-raw-fruits-vegetables-and-fish
- Internet access

ADVANCE PREPARATION

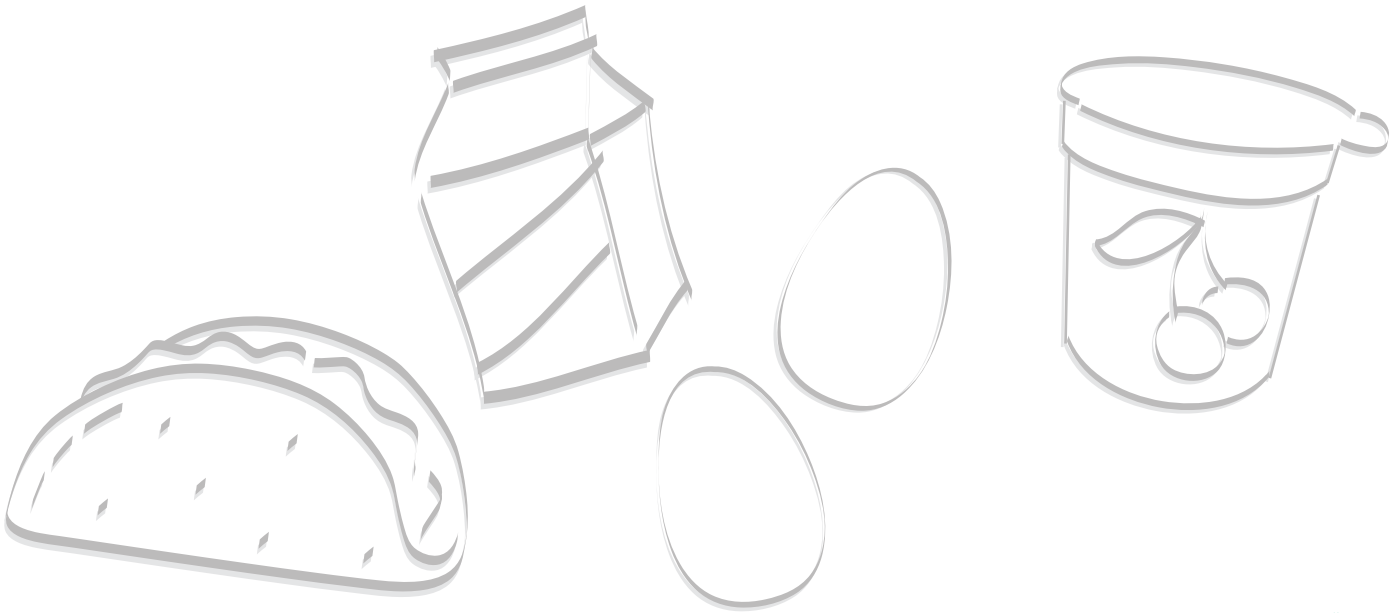
- Decide in advance how students will access nutrition information for the foods they will use to plan their meal. Students can access nutrition information directly from Nutrition Facts labels for breakfast food items, online (from such credible websites as tools.myfooddata.com/nutrition-facts/), or from credible printed materials. Plan ahead so that students have access to food labels, the internet, or enough printed materials for your class to complete this activity.
- You could bring clean, empty breakfast food containers, (e.g., yogurt, eggs, milk, and cereals),for your students to use. Students could also take photos of their foods' Nutrition Facts labels to show the class.
- Students can work individually or in small groups.

Fruit, Vegetable, and Seafood Information

Nutrition facts for most of the fruit, vegetable, and seafood choices are listed on the following FDA nutrition charts: www.fda.gov/food/food-labeling-nutrition/nutrition-information-raw-fruits-vegetables-and-fish

Sample Breakfast Foods

- Bacon
- Bagel
- Bread, whole wheat
- Biscuit
- Butter
- Cereal, corn flakes
- Cereal, oatmeal
- Cheese, cream
- Doughnut, glazed
- Egg, hard cooked
- Fruit juice, orange with calcium
- Fruit juice, tomato
- Jelly
- Margarine, tub
- Milk, 0% fat
- Muffin, plain
- Potato, hash browns
- Toaster pastry
- Waffle, plain, frozen
- Yogurt, low-fat with fruit



MEAL PLANNING

INTRODUCTION

A healthy breakfast is a great way to start your day! This meal planning activity will help you plan a healthy breakfast by using the Nutrition Facts label.

- **What is your favorite breakfast?**
- **What do you like about it?**
- **What nutrients do you think are in your breakfast?**
- **What do you think you need to get more of to help get your day started?**
- **Are there any important nutrients you might be missing?**

Note: If several students typically skip breakfast, discuss some possible breakfast options that are fast, convenient, healthy, and tasty. Keep in mind that students may have varied access to breakfast foods and some students might use the USDA School Breakfast Program.

STUDENT PROCEDURE

1. You are going to create a healthy breakfast that will be part of a 2,000-calorie daily plan; aim for about 500-600 calories (total) for this meal.

   Watch the video, *Reading the Food Label*, as a quick refresher on the parts of the Food Label. www.youtube.com/watch?v=s5zroZfMn0I

   Use the resources made available by your teacher to create one breakfast meal (Remember that you typically need 1,400 to 2,000 calories a day. However, youth who are large, muscular, athletic, and/or active will need substantially more calories than this, especially males.) Start by determining your own calorie needs with the MyPlate Plan Calculator.

2. As you choose foods for your breakfast, write them across the top row of your **Meal Planning** worksheet and complete the information about each food in the column below the food. This includes the number of servings and calories and nutrient data in percentages (i.e., the %DV for each nutrient that the food contributes). Remember to include beverages as well as condiments: for example, if you put ketchup on your eggs, ketchup should be included as one of your foods!

   If you plan to consume multiple servings of any of the foods you choose, remember to multiply the calories and nutrients in your tallies.

3. Be prepared to share your breakfast meal with the whole class: tell which foods you chose, and why you chose those particular foods. Don't forget that this breakfast meal is **only one part** of a 2,000-calorie day.

4. Answer the following questions about your meal:
   a) What is your cumulative %DV consumed for the nutrients to get more of: calcium, dietary fiber, iron, potassium, and vitamin D?
   b) Which nutrients might you need to get more of in this meal?
   c) What is the total number of calories a person would consume if he or she ate this meal?
   d) Did you use the ingredient list to choose your food?

REVIEW

- ***Where on the Nutrition Facts label can you find serving size and servings per container? Why are these important to know?*** Serving size and servings per container are found toward the top of the Nutrition Facts label. It's important to know how many servings are in a container since sometimes one container has multiple servings.
- ***How can you find how much energy you can get from a food? Why is it important to know the amount of energy you get from a food?*** The calories per serving tell you how much energy you can get from food. Consuming the right amount of calories in a day helps you to survive and thrive, as well as maintain a healthy body weight.
- ***How do you use %DV to determine whether the nutrients you want to get more or less of are high or low in a particular food?*** 5% DV or less of a nutrient per serving is low, and 20% DV or more of a nutrient per serving is high.
- ***What are nutrient-dense foods?*** Nutrient-dense foods provide vitamins, minerals, and other health-promoting components and have no or little added sugars, saturated fat, and sodium. A healthy dietary pattern consists of nutrient-dense forms of foods and beverages across all food groups, in recommended amounts, and within calorie limits.
- ***Which of the breakfast foods reported was the most nutrient-dense food? Which was the least nutrient-dense? What values did you use to determine this?***

DID YOU KNOW?

Facts for Discussion

- **Comparisons:** The %DV makes it easy for you to compare food choices. You can compare one product or brand to a similar product. Just make sure the serving sizes are similar, especially the weight (e.g., grams, milligrams, ounces) of each product's serving size. It's easy to see which foods are higher or lower in nutrients because the serving sizes are generally consistent for similar types of foods, except in a few cases like breakfast cereals (which vary in density).
- **Nutrient Content Claims:** Use the %DV to help you quickly distinguish one claim from another, such as "reduced fat" vs. "light" or "nonfat." Just compare the %DVs in each food product to see which one is higher or lower in a particular nutrient; there is no need to memorize definitions. This works when comparing all nutrient content claims (e.g., less, light, low, free, more, high, etc.) for nutrients you either want to get more of or less of.
- **Dietary Trade-Offs:** Use the %DV to help you make dietary trade-offs with other foods throughout the day. That means you don't have to give up a favorite food to eat a healthy diet. When a food you like is high in a nutrient you want to get less of – or low in a nutrient you want to get more of – you can simply balance it with foods that are low (or high) in that nutrient at other times of the day.

EXTENSIONS

Students could do one or more of the following activities:

1. Practice choosing nutrients wisely. Compare several Nutrition Facts labels from favorite packaged foods to identify foods that are higher in "nutrients to get more of" and lower in "nutrients to get less of." When comparing the %DV, remember: 5% DV or less per serving is low; 20% DV or more per serving is high!
2. Add your choices to the family shopping list. Read the label on foods and beverages in the pantry and refrigerator. Then add items to the shopping list that are higher in nutrients to get more of and lower in nutrients to get less of.
3. Show your "smarts" in the cafeteria. Look for the Nutrition Facts label on food packages like milk and milk products, snacks, and other foods; choose the ones that are high in nutrients to get more of and low in nutrients to get less of.

SUMMARY

A healthy eating pattern focuses on nutrient-dense foods. Many people need to get more of the following nutrients: calcium, dietary fiber, iron, potassium, and vitamin D.

The %DV on the Nutrition Facts label is a great tool to see how much of each of the nutrients are in a single serving of a food or beverage. Eat more foods that are good sources of the nutrients you need to get more of.

UP NEXT

Now that you've considered nutrients to get more of, let's learn more about fats.

RESOURCES

- *CDC's Information about the Nutrition Facts label*
  www.cdc.gov/healthyschools/bam/nutrition/nutrition-facts-label.htm
- *Dietary Guidelines for Americans, 2020-2025:* Food Sources of Select Nutrients
  www.dietaryguidelines.gov/resources/2020-2025-dietary-guidelines-online-materials/food-sources-select-nutrients
- *FDA's Interactive Label*
  www.accessdata.fda.gov/scripts/InteractiveNutritionFactsLabel
- *FDA's nutrition education materials*
  www.fda.gov/nutritioneducation
- *Meal Planning*
  www.myplate.gov/tip-sheet/meal-planning
- *USDA's MyPlate website*
  www.myplate.gov

STUDENT WORKSHEET
MEAL PLANNING – BREAKFAST

Name _____ Date _____ Class/Hour _____

1. Watch *Reading the Food Label*. www.youtube.com/watch?v=s5zroZfMn0I
2. Create a healthy breakfast that will be part of a 2,000-calorie daily plan; aim for about 500-600 calories (total) for this meal.
3. Determine your own calorie needs with the MyPlate Calculator: www.myplate.gov/myplate-plan.
4. Write the names of the foods you choose across the top row of the table below and complete the information about each food in the column below the food. Include the number of servings you plan to consume for each food, and multiply the calories and nutrients by the number of servings.

Use the Nutrition Facts label on your chosen foods to determine the amount of nutrients in each food and how each nutrient contributes to the %DV. To learn more about nutrients to get more and less of, explore the many online resources such as FDA's *Nutrition Information for Raw Fruits, Vegetables, and Seafood* www.fda.gov/food/food-labeling-nutrition/nutrition-information-raw-fruits-vegetables-and-fish.

Food Name(s)								
Servings Per Container								
Serving Size								
# of Servings Consumed								
Totals: (nutrient value x number of servings)								
Calories								
Total Fat (%DV)								
Saturated fat (%DV)								
Trans fat*								
Cholesterol (%DV)								
Sodium (%DV)								
Total Carbohydrate (%DV)								
Dietary Fiber (%DV)								
Total Sugars* (g)								
Added Sugars (%DV)								
Protein* (g)								
Vitamin D (%DV)								
Calcium (%DV)								
Iron (%DV)								
Potassium (%DV)								

*While the Nutrition Facts label does not list a %DV for *trans* fat, Total Sugars, or protein, you can record the grams of each of these three components for a food.

What is your cumulative breakfast %DV for each of the following?

Vitamin D _____

Calcium _____

Iron _____

Potassium _____

What is your cumulative breakfast %DV (or milligrams/grams) for each of the following?

Saturated fat _____

Sodium _____

Added Sugars _____

STUDENT REVIEW WORKSHEET
MEAL PLANNING

Name _____ Date _____ Class/Hour _____

1. Where on the Nutrition Facts label can you find serving size and servings per container? _____

2. Why are these important to know? _____

3. Where can you find how many calories you can get from a food? _____

4. Why is it important to know the amount of energy (calories) you get from a food? _____

5. How do you use %DV to determine which nutrients in the food are low and which are high? _____

6. How would you define the phrase 'nutrient-dense foods'? _____

7. Which of the foods in your breakfast meal was the most nutrient-dense? _____

8. Which was the least nutrient-dense food? _____

9. What values did you use to determine this? _____

MODULE 4 A CLOSER LOOK AT FATS

This module introduces terminology for fats, discusses the connection between health and dietary fats, and provides engaging activities for students to learn about fats in foods.

BACKGROUND INFORMATION

This module describes the role of fats in food and in the body, and how they serve as a source of energy. It provides information on different types of fats that are listed on the Nutrition Facts label – including total fat, saturated fat, and *trans* fat—and defines *trans* fat and cholesterol. The module also includes dietary guidance for fat consumption.

ACTIVITY 1

Get the Facts about Fats! — Interactive Label Research helps students identify which types of fats are found in different foods and how food choices may impact health.

Time to Tune In
These videos provide an overview of the types of fats and their health benefits as well as health risks.

Good Fats vs. Bad Fats (3:43)
www.youtube.com/watch?v=Foh4DyqMc1A

What is fat? (4:22)
ed.ted.com/lessons/what-is-fat-george-zaidan

ACTIVITY 2

Saturated and Unsaturated Fat Modeling guides students through constructing models of saturated and unsaturated fat molecules.

DID YOU KNOW?

The *Dietary Guidelines for Americans*, 2020-2025 recommends that starting at age 2, people should consume less than 10 percent of calories per day from saturated fat.

BACKGROUND INFORMATION

TERMINOLOGY

Lipids are a large group of organic compounds that are oily to the touch and insoluble in water. Lipids include fats, oils, and waxes and are a source of stored energy.

The terms **lipids** and **fats** are often used interchangeably. Fats are also called triglycerides, because they are usually made up of three fatty acids and a glycerol molecule. For this module, we will use the term "fat" to represent all dietary lipids.

Oils are usually liquid at room temperature, high in monounsaturated or polyunsaturated fatty acids, and lower in saturated fatty acids than fats that are solid at room temperature.

Understanding Dietary Fat

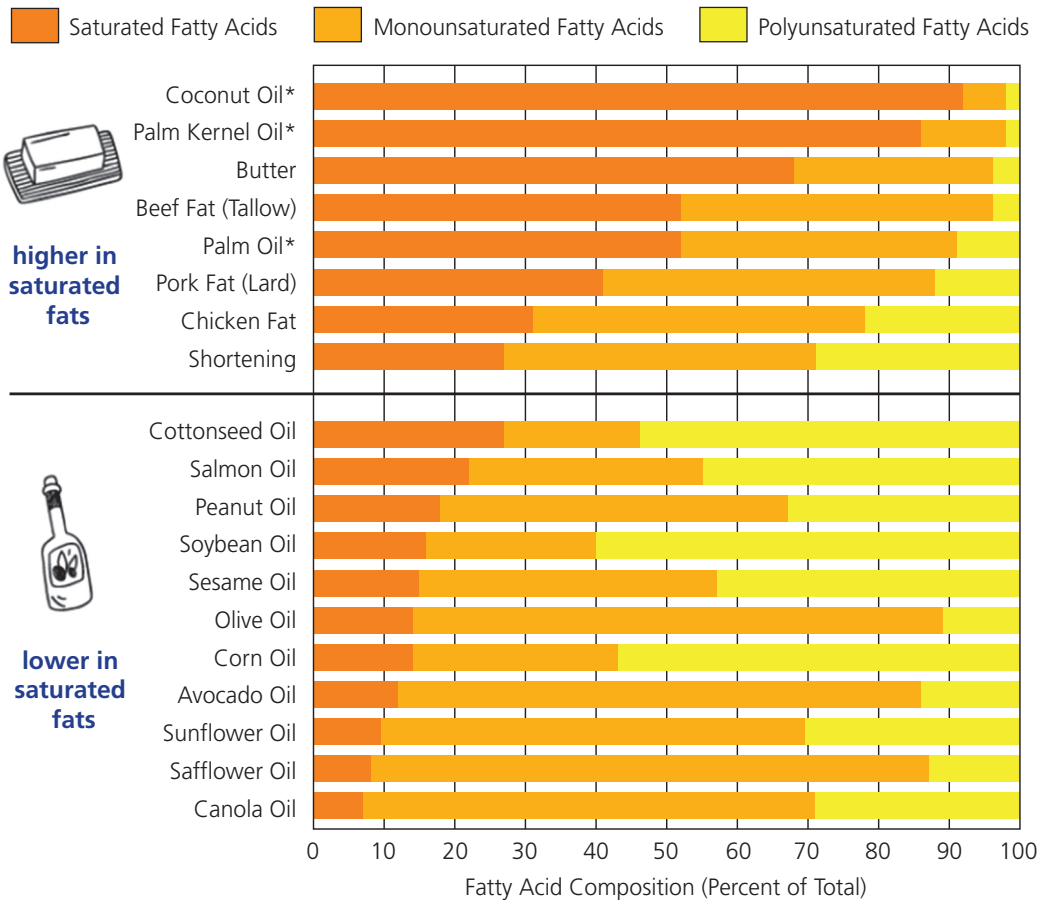
Dietary fats are found in both plant and animal foods, and they are broken down into fatty acids during digestion. All dietary fats are composed of a mix of saturated, monounsaturated, and polyunsaturated fatty acids, in varied proportions. For example, most of the fatty acids in butter are saturated, but it also contains some monounsaturated and polyunsaturated fatty acids. Fat is also a source of essential fatty acids (linoleic acid and alpha-linolenic acid), which the body cannot synthesize (produce) and therefore must obtain from the diet.

Are all fats created equally?

No. The FDA allows the following health claim to be made about fats:

Diets low in saturated fat and cholesterol may reduce your risk of heart disease.

Fatty Acid Profiles of Common Fats and Oils



*Coconut, palm kernel, and palm oil are called oils because they come from plants. However, they are solid or semi-solid at room temperature due to their high content of short-chain saturated fatty acids.

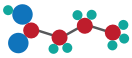
Graphic adapted from the *Dietary Guidelines for Americans, 2015 - 2020.*

BACKGROUND INFORMATION

Fat in foods is a major source of energy for the body and aids in the absorption of the fat-soluble vitamins A, D, E, and K. Fats are also important for proper growth and maintenance of good health, since they play a role in the structure and function of cell membranes, the integrity of skin, maintaining healthy blood cells, and fertility. As a food ingredient, fats provide taste, consistency, and stability and help us feel full.

The Daily Value for total fat is 35% of total calories, which is 78 grams/day based on a 2,000-calorie diet: saturated fats should contribute less than 10% of daily calories. **All fat has 9 calories per gram**, making it a concentrated source of energy, so it should be eaten in moderation. Although most people consume enough fat, many people consume too much saturated fat and not enough unsaturated fat. **The Nutrition Facts label is a useful tool for checking how much, and what kind of fat is in a food**.

About Saturated Fatty Acids



Saturated fats are typically found in animal products. Dietary fats that have more saturated fatty acids tend to be solid at room temperature. They are called "saturated" because all the spaces on the fat molecule that can hold a hydrogen atom do so and are "full" – that is, the molecule is "saturated" with hydrogen atoms.

Saturated fats taste good and reduce hunger, but eating too much of them increases the risk of cardiovascular disease. Saturated fatty acids are found in the greatest amounts in animal fats (including beef, pork, lamb, and poultry with skin), full-fat dairy products (butter, cream, cheese, and ice cream), many sweet desserts (cakes and cookies), fried foods, and some plant-based oils such as coconut oil, palm oil, and palm kernel oil.

Teacher Note

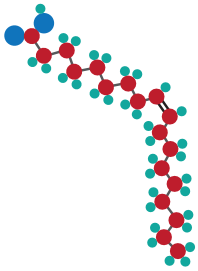
For more about Saturated Fats, see:

- *Dietary Guidelines for Americans, 2020-2025* Chapter 1
- *American Heart Association: The Skinny on Fats*

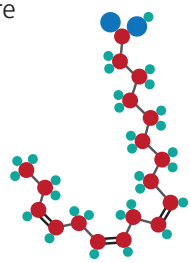
About Unsaturated Fatty Acids – Heart Healthy Fats!

Unsaturated fatty acids include monounsaturated and polyunsaturated fatty acids. They are called "unsaturated" because some of the carbon atoms in the fat molecule do not hold a hydrogen atom. They are found in higher proportions in plants and seafood.

Monounsaturated fatty acids have one double bond in the fat molecule, and polyunsaturated fatty acids have more than one double bond. Oils that are high in unsaturated fatty acids are not considered to be a separate food group, but they are important because they can reduce the risk of developing cardiovascular disease when eaten *in place of* saturated fat.



- **Monounsaturated fatty acids (MUFAs)** are found in relatively large amounts in olive, canola, safflower, and sunflower oils as well as in avocados, peanut butter, and most nuts. There is no recommended daily intake of MUFAs.



- **Polyunsaturated fatty acids (PUFAs)** are found in vegetable oils and fatty fish such as salmon, mackerel, and sardines. PUFAs include omega-3 and omega-6 fatty acids, which are the two primary types of essential fatty acids (EFAs). EFAs are nutrients required for normal body functioning, but they cannot be made by the body and must be obtained from food. The body uses this fat to build cell membranes and nerve tissue (including the brain), and to regulate hormones.

Reducing Saturated Fats

Unsaturated fats and oils should *replace* saturated fats in the diet, rather than just being added to it. This allows the total amount of fat consumed to remain within recommendations without exceeding daily calorie limits. Unsaturated fatty acids may be voluntarily listed on the Nutrition Facts label and included under Total Fat. **One gram of unsaturated fat is healthier than one gram of saturated fat, but both have the same number of calories: 9 calories per gram**.

BACKGROUND INFORMATION

About *Trans* Fats, A Danger Zone!

Trans fat is an unhealthy fat. Although *trans* fatty acids are unsaturated, they are structurally similar to saturated fatty acids and therefore behave like them. *Trans* fat raises LDL ("bad" cholesterol), and an elevated LDL increases the risk of developing cardiovascular disease (see the Cholesterol section below).

The National Academies of Science, Engineering, and Medicine recommends that *trans* fat consumption be as low as possible without compromising the nutritional adequacy of the diet. As of June 2018, partially hydrogenated oils (PHOs), the major source of artificial *trans* fat in the food supply, are no longer Generally Recognized as Safe (GRAS). Therefore, PHOs are no longer added to foods. But *trans* fat will not be completely gone from foods because it occurs naturally in small amounts in some animal products and is present at very low levels in refined vegetable oils. This hidden fat can add up if you eat several servings of products that contain it.

Learn more about *trans* fat at this FDA webpage:
www.fda.gov/food/food-additives-petitions/trans-fat

Fatty Acid Composition and Melting Point

Unsaturated fatty acids have one or more double bonds in their carbon chains. Most naturally-occurring unsaturated fatty acids have their hydrogen atoms on the same side of the double bond, which is known as the "*cis*" configuration ("*cis*" means "on this side"). This type of geometry produces a kink at the double bond which causes the carbon chains to bend so they cannot become closely aligned. When fatty acids are separated from each other like this, they have weak intermolecular interactions and tend to form liquids. Thus, products such as olive oil and canola oil are liquid at room temperature and are said to have a low melting point. The melting point is the temperature at which a solid fat "melts" and becomes liquid. A melting point below room temperature (70° F) is considered "low." The melting points of different fatty acids vary, depending on the number of double bonds and the length of the carbon chain.

Trans fatty acids have their hydrogen atoms on opposite sides of the double bond (*"trans"* means "across"), which does not result in a kink at the double bond or cause bending. The carbon chains of *trans* fatty acids remain relatively straight, like the configuration of saturated fatty acids. Thus, *trans* and saturated fatty acids can pack together tightly with relatively little space between them, so their intermolecular interactions are stronger which results in a more solid structure. Therefore, foods such as butter and animal fats, which are relatively high in saturated fatty acids, are solid at room temperature and have higher melting points; i.e., they don't become liquid unless exposed to higher temperatures. In addition, longer chain saturated fatty acids have higher melting points than shorter chain saturated fatty acids.

Fat vs. Fatty Acid

Many consumer education and outreach efforts use the term "Fat" in place of "Fatty Acid" for Total Fat, Saturated Fat, Mono- and Polyunsaturated Fat, and *Trans* Fat. This Guide generally uses the more common term "Fat" for "Fatty Acid" also.

Fatty Acid Chain Length

In addition to whether they are saturated or unsaturated, fatty acids are categorized by their chain length. Most naturally occurring fatty acids have an unbranched chain with an even number of carbon atoms (between 4 and 28).

- Short-chain fatty acids have 6 or fewer carbon atoms.
- Medium-chain fatty acids have 8 – 12 carbon atoms.
- Long-chain fatty acids have 14 – 20 carbon atoms. These are the most common types.
- Very long-chain fatty acids have 22 or more carbon atoms and make up only a small percentage of the total fatty acid content of most foods.

BACKGROUND INFORMATION

About Cholesterol

Cholesterol is a waxy, fat-like substance made by all cells of the body. The organs that make the most cholesterol are the liver and intestines. The body uses cholesterol to produce vitamin D and certain hormones (e.g., estrogen and testosterone) and bile (a fluid that aids in fat digestion). Cholesterol in food is referred to as "dietary cholesterol" and is found *only* in animal products—never in plants. Cholesterol is transported in the blood by particles called "lipoproteins," which contain both fat and protein. Over time, cholesterol and other substances can build up in the arteries and cause cardiovascular problems. The human body makes all the cholesterol that it needs, so it is not necessary to get cholesterol from food.

HDL & LDL Cholesterol

- **High Density Lipoprotein (HDL)** cholesterol is often referred to as "good" cholesterol. HDL cholesterol travels from the body tissues to the liver, where it is broken down and removed. Higher levels of HDL cholesterol in the blood can help prevent cholesterol buildup in blood vessels, decreasing the risk of developing cardiovascular disease.
- **Low-density Lipoprotein (LDL)** cholesterol is often referred to as "bad" cholesterol. It is the form that moves cholesterol from the liver to the arteries and body tissues. Higher levels of LDL in the blood can lead to a harmful cholesterol buildup in blood vessels, increasing the risk of cardiovascular disease.

Foods such as meats and dairy products that are high in saturated fats may also be sources of dietary cholesterol. This combination can increase the risk of developing cardiovascular disease. The goal for consumption is to get less than 100% of the Daily Value for saturated fat and cholesterol each day: limiting intake of saturated fats will also help to limit intakes of dietary cholesterol.

More About Cholesterol

Saturated fat and *trans* fat intake affect the level of cholesterol in blood more than consumption of dietary cholesterol does; therefore saturated and *trans* fats are more important dietary risk factors for cardiovascular disease than is dietary cholesterol. It's more important to limit saturated fat and *trans* fat in the diet than it is to limit dietary cholesterol.

- Foods that are high in cholesterol also are often high in saturated fat, so by limiting the consumption of saturated fat from animal sources, one can usually also reduce cholesterol intake.
- FDA considers the amount of dietary cholesterol in foods to be important information for consumers to know.
- The *Dietary Guidelines for Americans, 2020-2025*, address dietary cholesterol with the following statement: "The National Academies recommends that *trans* fat and dietary cholesterol consumption to be as low as possible without compromising the nutritional adequacy of the diet. The USDA Dietary Patterns are limited in *trans* fats and low in dietary cholesterol. Cholesterol and a small amount of *trans* fat occur naturally in some animal source foods."

PUBLIC HEALTH CONNECTION

- Developing healthy eating habits during adolescence can help reduce the risk of major chronic diseases. A healthy diet includes limiting saturated fat and *trans* fat and eating unsaturated fat in moderation.
- Saturated and *trans* fats raise LDL (or "bad") cholesterol levels in the blood, which can increase the risk for heart disease.
- Unsaturated fats such as monounsaturated and polyunsaturated fat do not raise LDL cholesterol and are beneficial when *substituted for* saturated fat and consumed in moderation. Choose foods low in saturated fat, *trans* fat, and dietary cholesterol as part of a healthful diet, and include sources of omega-3 and omega-6 fatty acids, such as fish and olive oil.

DID YOU KNOW?

HDL cholesterol and LDL cholesterol are found *only* in blood, not in food. They are the forms of cholesterol that move through the body. You can't "look for" foods high in HDL and low in LDL to optimize your diet, but regular aerobic exercise may increase levels of HDL ("good") cholesterol in the blood.

ACTIVITY 1: GET THE FACTS ABOUT FATS! – INTERACTIVE LABEL RESEARCH

TIME One 45-minute class period

ACTIVITY AT A GLANCE

In this activity, students will learn about fats and oils, their functions and related health concerns. They will use Fact Sheets from FDA's Interactive Nutrition Facts Label website to distinguish between different kinds of dietary fats, their characteristics, food sources, and health connections.

TIME TO TUNE IN

These videos provide an overview of the types of fats and their health benefits as well as health risks.

Good Fats vs. Bad Fats (3:43)
www.youtube.com/watch?v=Foh4DyqMc1A

What is fat? (4:22)
ed.ted.com/lessons/what-is-fat-george-zaidan

GET THE FACTS ABOUT FATS! — INTERACTIVE LABEL RESEARCH

GETTING STARTED

MATERIALS

- One copy of the **Interactive Label Research** worksheet for each student
- Internet access
- Printed Fact Sheets or online access to FDA's **Interactive Nutrition Facts Label** pages for Saturated Fat, Monounsaturated and Polyunsaturated Fat, *Trans* Fat, and Cholesterol.
  www.accessdata.fda.gov/scripts/InteractiveNutritionFactsLabel/#downloadables

Note: This assignment could be completed in class or given as a homework assignment.

INTRODUCTION

Get the Facts about Fats! - Interactive Label Research

Ask these questions to introduce fats and foods that contain fats:

- **Do you think that most Americans consume too much fat? What is the basis of your opinion?**
- **What is fat?**
- **Which of your favorite foods contain fat?**
- **What do you know about the different kinds of fat?**

Let's look at the Interactive Nutrition Facts Label Fact Sheets to find out more about the different kinds of fat.

STUDENT PROCEDURE

1. Watch these two videos: *Good Fats vs. Bad Fats*
   www.youtube.com/watch?v=Foh4DyqMc1A

   What is fat?
   ed.ted.com/lessons/what-is-fat-george-zaidan

2. Open the link to the Interactive Nutrition Facts label below; you will see a bar across the top with various topics that explain components of the label; click onto the last one: **Fact Sheets**
   www.accessdata.fda.gov/scripts/InteractiveNutritionFactsLabel/

3. Open the following Fact Sheet links to complete the **Interactive Label Research** worksheet:
   - Monounsaturated and Polyunsaturated Fats
   - Saturated Fat
   - *Trans* Fat
   - Cholesterol

4. As you read the Fact Sheets, complete the table on the **Interactive Label Research** worksheet and respond to the questions below the table.

5. Discuss your responses as a class.

GET THE FACTS ABOUT FATS! — INTERACTIVE LABEL RESEARCH

REVIEW

What are the different types of fat? (Saturated, monounsaturated, polyunsaturated, and *trans)*

What food sources are high in saturated fats? Saturated fatty acids (saturated fats) are found in the greatest amounts in coconut and palm kernel oils, in butter and beef fats, and in palm oil. They are also found in other animal fats such as pork and chicken fats, and in fats from some plant foods.

What are good sources of unsaturated fats? They are found in higher proportions in plants and seafood.

What dietary fats limits are recommended?
The recommended daily amount of fats to eat is 25-35% of total daily calories, with saturated fats contributing less than 10% of daily calories. Try to limit *trans* fats as much as possible.

SUMMARY

Dietary fats are a good source of energy. Although most people consume enough fat overall, many people consume too much saturated fat and not enough unsaturated fat. You can use the Nutrition Facts label to make smart choices about dietary fat consumption.

Chip Dip Challenge

Read the following scenario:

You are having a party. Which one of the chip dips listed below would you choose and why? Include evidence from what you have learned along with reasoning to support your position. Consider both health and taste concerns in your evaluation.

Look at the options below and consider the grams (g) of saturated fat per serving. Also check/evaluate other nutrients to make the best (healthiest) choice. Note: Total fat on a Nutrition Facts label may be higher than the amount of saturated fat, since the total also includes unsaturated fats.

How can you use the Nutrition Facts label to tell which one of the foods on the chart below would be the best choice for a dip?

Creamy cheese dip (2 tbsp/serving)		Salsa (2 tbsp/serving)		Guacamole (2 tbsp/serving)		Sour cream (2 tbsp/serving)	
Saturated Fat:	4.3g	Saturated Fat:	1g	Saturated Fat:	0.6g	Saturated Fat:	3.5g
Unsaturated Fat:	2.6g	Unsaturated Fat:	0g	Unsaturated Fat:	3.1g	Unsaturated Fat:	1.5g
Cholesterol	25 mg	Cholesterol	0 mg	Cholesterol	0 mg	Cholesterol	20 mg

RESOURCES

- *Cut Down on Saturated Fat*
  www.dietaryguidelines.gov/sites/default/files/2021-11/DGA_FactSheet_SaturatedFats-07-09_508c_0.pdf
- *Dietary Guidelines for Americans, 2020-2025*
  www.dietaryguidelines.gov
- *FDA's Interactive Nutrition Facts Label Sheets (downloadable)*
  www.accessdata.fda.gov/scripts/InteractiveNutritionFactsLabel
- *Harvard Health Publications: The truth about fats: the good, the bad, and the in-between December 2019*
  www.health.harvard.edu/staying-healthy/the-truth-about-fats-bad-and-good
- *Hidden Fats*
  www.fatsecret.com/calories-nutrition/usda/hard-salted-pretzels?portionid=62057&portionamount=45

STUDENT WORKSHEET

ACTIVITY 1: GET THE FACTS ABOUT FATS! – INTERACTIVE LABEL RESEARCH

Name _____ Date _____ Class/Hour _____

The Interactive Label website has some great information to help you make healthier choices. This activity will help you learn more about fats.

1. Open up the link below, click on the Fact Sheets tab, and read the following Fact Sheets: Monounsaturated and Polyunsaturated Fats; Saturated Fat; *Trans* Fat.
2. When you finish reading the Fact Sheets, complete the table and the questions that follow.

Use information found at this link to complete this chart: www.accessdata.fda.gov/scripts/InteractiveNutritionFactsLabel/

Kind of Fat	Health Benefits	Health Risks	Sources	Characteristics
Saturated				
Monounsaturated				
Polyunsaturated				
Trans				

1. Fat is called the best source of energy. Why? _____

_____

2. How is the amount of energy that you get from fats different from the amount of energy that you get from proteins and carbohydrates? _____

_____

3. Why are fats important for proper growth and health? _____

_____

4. What are the major sources of fats in the diet? _____
5. To reduce the amount of saturated fat in your diet, which foods would you limit and why? _____

_____

6. Create a Venn diagram to compare and contrast saturated and unsaturated fats. (Use a blank sheet of paper if needed.)
7. Explain the differences in carbon bonds in saturated fat, monounsaturated fat, and polyunsaturated fat. _____

_____

8. What are typical food sources for cholesterol? What kind of fats do these same foods typically have more of? _____

_____

9. At the beginning of this activity, you were asked if you thought most Americans consumed too much fat. Based on what you have learned about fats in this lesson, what is your opinion now of this statement? Explain the reasons for your opinion.

_____

_____

ACTIVITY 2: SATURATED AND UNSATURATED FAT MODELING

TIME One 45-minute class period

ACTIVITY AT A GLANCE

Students will construct models of saturated and unsaturated fat molecules.

GETTING STARTED

ADVANCE PREPARATION

1. Divide the class into groups.
2. Gather a variety of food samples composed mainly of fat for display. A clear bottle of cooking oil and a container of shortening are good choices. (Use caution: Do not use foods for which students have known food allergies.)
3. Print an image of a saturated fatty acid chain and an unsaturated fatty acid chain for each group, or show this short video of saturated and unsaturated fat molecule models: *Unsaturated and Saturated Fats - Biology in Minutes* www.youtube.com/watch?v=Cbt-WWJRcqw.

MATERIALS

Each group will construct 5 saturated fatty acid chain models and 5 unsaturated fatty acid chain models with 10 carbons each.

You will need:

- 3 different colored miniature items, such as marshmallows, small Styrofoam balls, gum drops, playdough, etc. (320 pieces per group total: 100 carbon atoms, 200 hydrogen atoms, and 20 oxygen atoms for the 10 models)
- Flat toothpicks cut in half: 300 pieces per group
- 12″ ruler (or measuring tape)
- Make copies of the **Saturated and Unsaturated Fatty Acid Molecular Modeling** worksheet for each group to record data.

TEACHER NOTE

For sturdier molecule models, allow miniature marshmallows to air dry for a day or two before use.

INTRODUCTION

Saturated and Unsaturated Fat Modeling

Now that you have learned about fat and the different kinds of fat, let's see how saturated and unsaturated fatty acids differ using molecular models. How do you think they will be the same? How do you think they will differ?

Some fats are really easy to identify as having more saturated or more unsaturated fatty acids because we can see and feel their properties. (Look at butter and oil.)

Fats at room temperature come in both solid and liquid form depending on the amounts of different types of fatty acids they contain, but when they are hidden in food they are harder to identify. Today we are going to make models of saturated and unsaturated fatty acids to see how well they pack together.

As you do this activity, remember that each carbon atom can form a single bond with up to four other atoms.

The four types of bonds formed by a single carbon to other atoms include:

- Four single bonds
- Two single and one double bond
- Two double bonds
- One triple and one single bond

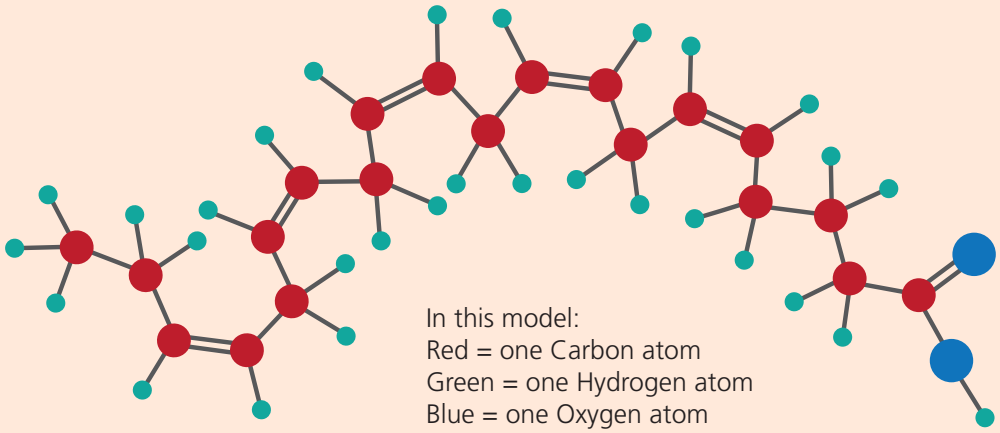
Create a model (example is made with miniature marshmallows) with a single marshmallow to represent a carbon atom, connected to four marshmallows of a different color that represent hydrogen atoms.

SATURATED AND UNSATURATED FAT MODELING

Sample Unsaturated Fatty Acid Model Image

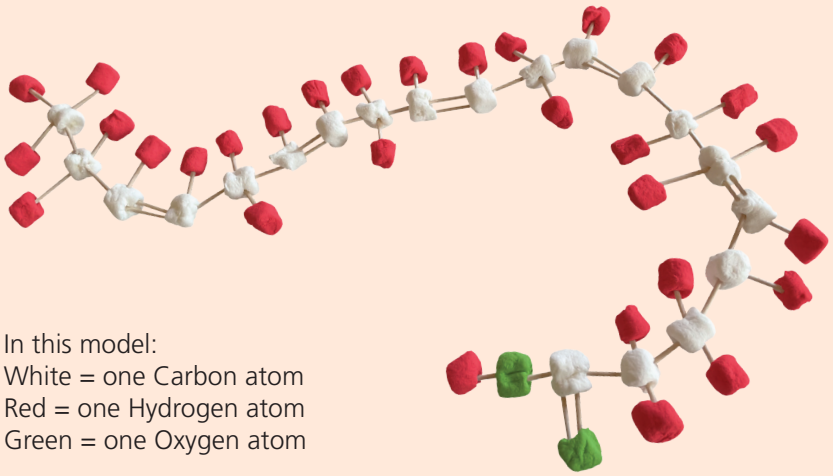
Eicosapentaenoic acid (EPA)

EPA is a 20-carbon polyunsaturated omega 3 fatty acid with 5 *cis* double bonds at positions 5, 8, 11, 14 and 17. It is metabolized and incorporated into cell membrane phospholipids and may play a role in limiting inflammation. EPA is found in fish oils, especially those extracted from fatty fish such as salmon.



In this model:
Red = one Carbon atom
Green = one Hydrogen atom
Blue = one Oxygen atom

Sample Mini-marshmallow EPA Model



In this model:
White = one Carbon atom
Red = one Hydrogen atom
Green = one Oxygen atom

Model courtesy of Laurie Hayes

SATURATED AND UNSATURATED FAT MODELING

STUDENT PROCEDURE

You will construct models for saturated and unsaturated fatty acids and compare how they pack together.

1. Review images of a saturated fatty acid chain and an unsaturated fatty acid chain.
2. Each group will construct 5 saturated fatty acid chains and 5 *cis* unsaturated fatty acid chains, each with 10 carbon atoms, represented by the miniature marshmallows. One toothpick should be used to represent a single bond, and 2 toothpicks would be a double bond. Try to make the bond length as consistent as possible.
3. Measure the length of each fatty acid chain.
4. Stack your 5 intact saturated fatty acid chain models together and measure the 3-dimensional volume (height x width x length) of the stacked models using a ruler.
   - Record this volume on your worksheet.
5. Stack your 5 intact unsaturated fatty acid chain models together and measure the 3-dimensional volume using a ruler.
   - For the unsaturated fatty acid models, record the number of double bonds and their position. For consistency, everyone in the class should count double bond positions from the same end of the fatty acid chain, either the COOH- (carboxyl) end or the CH_3 (methyl) end.
   - Record this volume on your worksheet.
6. Each group should discuss what volumes they have for their saturated fatty acids cluster.
7. Compare the differences (if any) in each group's volume for their fatty acid cluster.
8. Discuss the volumes each group had for their <u>unsaturated</u> fatty acids cluster.
9. Compare the volume of your <u>unsaturated</u> fatty acid cluster with that of the other groups. Are there any differences and if so, describe them.
10. *What difference does it make how far apart the fatty acid chains are from one another?*
    - *How would this affect melting point?*
    - *How did the number of double bonds affect the final cluster volume?*
    - *How did the position of the double bond(s) affect the final cluster volume?*

REVIEW

What is the molecular basis for the melting point variation between saturated and unsaturated fatty acids? The bent configuration of *cis* unsaturated fatty acids keeps molecules further away from each other, which results in weaker intermolecular interactions and lower melting points.

SUMMARY

Saturated fatty acids pack together more densely, resulting in stronger molecular attractions and higher melting points. This causes saturated fats to be solid at room temperature.

SATURATED AND UNSATURATED FAT MODELING

EXTENSION

Students could do the following activity:

Lipids Activity: This interactive activity enables students to learn about the differences in molecular structure between solid and liquid fats. For those looking for a focus on the molecular structure of fats, this is an excellent activity. The game has clickable icons to learn or review information. Students who know little about fats can learn as they progress. To access the activity, students will be asked to sign up for a free account.
www.ck12.org/assessment/tools/geometry-tool/plix.html?eId=SCI.BIO.214&questionId=546a8a335aa413612dcfe6ea&artifactID=1824138&backUrl=http%3A//www.ck12.org/search/%3Fq%3Dfats%26referrer%3Dtop_nav%26autoComplete%3Dfalse%23interactive

RESOURCES

- *Molecular Structure of Fat* (interactive)
  www.biointeractive.org/classroom-resources/molecular-structure-fat
- *How the Body Uses Fat* (interactive)
  www.biointeractive.org/classroom-resources/how-body-uses-fat
- *Virtual Molecular Model Kit*
  www.chemagic.org/molecules/amini.html
- *What's ice cream, and why do we scream for it?*
  cen.acs.org/environment/food-science/What-s-ice-cream-and-why-do-we-scream-for-it/96/i31
- *Many Forms of Lipids*
  www.chem4kids.com/files/bio_lipids.html
- *Lipids*
  www.khanacademy.org/science/biology/macromolecules/lipids/a/lipids

UP NEXT

Now that you know more about fats, let's use what you've learned to choose meals when away from home.

STUDENT WORKSHEET

ACTIVITY 2: SATURATED AND UNSATURATED FATTY ACID MOLECULAR MODELING

Name _____ Date _____ Class/Hour _____

Saturated Fatty Acid Models		Unsaturated Fatty Acid Models			
Length	Cluster volume	Length	# Double bonds	Double bond position(s)	Cluster volume
1.		1.			
2.		2.			
3.		3.			
4.		4.			
5.		5.			

1. How much difference was there between the cluster volume of your saturated fatty acids and the cluster volume for your unsaturated fatty acids?

_____

_____

2. How does cluster volume affect the density of the fatty acids? How would this affect melting point?

_____

_____

3. Why is it important to know about the amount and kind of fat in food?

_____

_____

MODULE 5 HEALTHY EATING AWAY FROM HOME

This module teaches students how to support healthy eating patterns when eating away from home at restaurants and similar settings. It also introduces students to the nutrient/calorie information available for vending machine foods and beverages.

BACKGROUND INFORMATION: PART 1

This module highlights awareness of consuming nutrients and calories away from home, and where to find the calorie and nutrition information for foods available in fast food restaurants. It also highlights how to determine individual calorie needs, as well as the number of calories in a typical fast food meal, and it focuses on dietary goals for saturated fat and sodium.

ACTIVITY 1

Two Meals on the Go! will challenge (or engage) students to search for two meals from a fast food restaurant, locate the nutrition information for each item in the meal, and use this data to determine how healthy their meals are.

Time to Tune In
WebMD: *Healthy Eating When Dining Out* slideshow (22 slides)

www.webmd.com/diet/ss/slideshow-healthy-eating-out

Teachers can print copies of the slides or view them online to discuss key points with their students.

HEALTHY EATING PATTERN

A healthy eating pattern includes fruits (especially whole), vegetables (including a variety of dark green, red, and orange), protein foods, low-fat or fat-free dairy, whole grains, and oils, while limiting saturated fats, added sugars, and sodium.

Dietary Goals for Ages 2 Years and Older

- Less than 10 percent of calories/day from saturated fats
- Less than 10 percent of calories/day from added sugars
- Less than 2,300 milligrams/day of sodium, and even less for children under 14 years old
- Typically, 1,400 to 2,600 calories/day for children ages 9 to 13 years old, and 1,800 to 3,200 calories/day for those ages 14 to 18 years old. However, individual calorie needs vary depending on age, sex, and activity level. Check calorie needs at www.myplate.gov/myplate-plan
  (Source: *Dietary Guidelines for Americans, 2020-2025*)

Note: Menu Labeling requirements do not include Added Sugars. However, if a meal does not contain fruit or dairy, most of the Sugars listed likely come from Added Sugars.

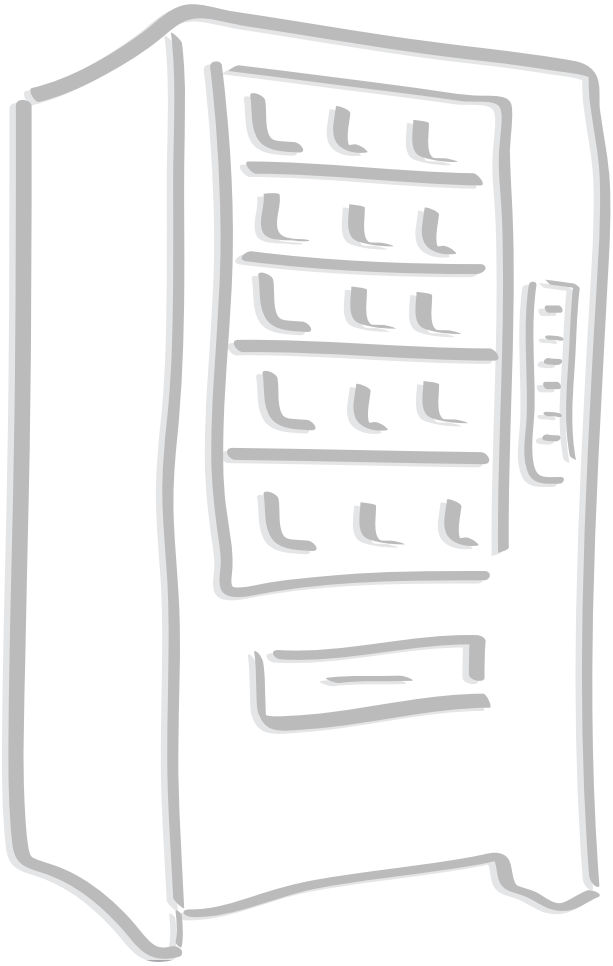
BACKGROUND INFORMATION: PART 2

This module directs students' attention to calorie information on vending machine selections. It also focuses on selecting healthy snack options away from home, particularly at school.

ACTIVITY 2

✔ Your Snacks challenges students to read the Nutrition Facts label for their favorite snack foods and compare them with healthy, nutritious school snacks.

Time to Tune In
HealthWorks! Healthy Living Series: Healthy Snacks (2:20)
www.youtube.com/watch?v=jUWX5cHKxJg



Pay Attention to Serving Size and Servings per Container

Serving Size is based on the amount of food that is customarily eaten at one time and is not a recommendation of how much to consume.

Servings per Container shows the total number of servings in the entire food package or container. Often, one package of food contains more than one serving!

Note (for packaged vending machine and other labeled items): The calories for vending machine items are displayed for the entire package unless the Nutrition Facts label is displayed.

BACKGROUND INFORMATION

PART 1

Restaurants & Stores

Many people enjoy eating meals away from home or the convenience of carry-out food. Studies show that Americans consume a third of their daily calories from foods prepared outside of their homes at restaurants, fast food establishments, and other food venues. This can make it difficult for families to eat healthy, nutritious meals. How often do *you* eat food prepared from a restaurant or other venue?

Some restaurants now provide a great deal of information to help consumers make more healthy choices when eating out. Listing calories is required on certain restaurant menus and menu boards to help consumers choose healthier options. Menu labeling is required for restaurants and other similar retail food establishments that are a part of a chain of 20 or more locations and meet certain other criteria. Establishments that are covered by the menu labeling regulation are also required to have additional written nutrition information available upon consumer request. This menu labeling is consistent nationwide and provides easy-to-understand nutrition information.

Restaurant Menu Labeling

Applies to some food/ meals/snacks sold at certain	Does not apply to food/ meals/snacks sold at/on/as
Amusement parks	Airplanes
Bakeries	Deli items sold by weight and not listed on a menu board
Sit-down and Fast-Food Restaurants	Food trucks
Coffee shops	Grocery store purchases in bulk
Convenience stores	The USDA National School Lunch program
Drive-through windows	Trains
Take-out/delivery establishments	
Restaurant-type foods at grocery and convenience stores	
Self-serve buffets and salad bars	
Ice cream stores	
Movie theaters	

FDA requires restaurants to include a statement on menus and menu boards to remind consumers that "2,000 calories a day is used for general nutrition advice, but calorie needs vary."

Why is reading calories on the menu important?

Your body needs nutrients to grow and develop. Many foods that are high in calories are high in saturated fats and/or Added Sugars. Whether you are trying to lose, gain, or maintain weight, the key is to balance the number of calories you consume with the number of calories your body uses ("burns").

Where is calorie information located?

Calorie information is located clearly on menus and menu boards next to the name or the price of the food or beverage.

For buffets and salad bars, calories are shown on signs that are visible when selecting the foods.

Calories are not required to be listed for:

- Condiments that are available for general use (such as ketchup packets on the counter)
- Daily specials (such as a chef's soup special)
- Custom orders (such as a burger with no bun)
- Temporary/seasonal menu items (such as eggnog-flavored latte)

Combination Meals

- When combinations of more than one food item are listed together as a meal, such as a hamburger, fries, and a drink, and there are three or more options (e.g., more than three drink choices), the calories are shown as a range: for example, 400 - 750 calories.
- When there are only two choices of the variable component of that combination meal, such as fries or a side salad, the calories are displayed with a slash: for example, 150/200 calories.

BACKGROUND INFORMATION

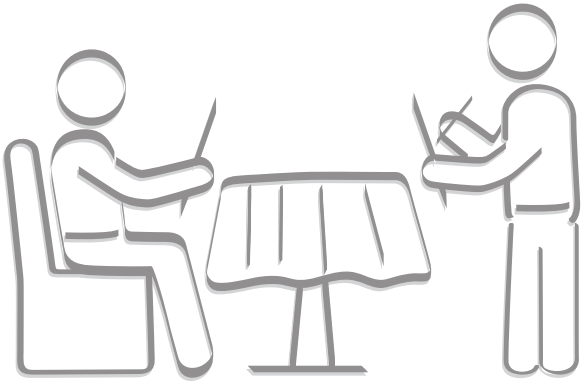
Is there additional nutrition information? If so, where can it be found?

The additional written nutrition information must be available on the premises of those establishments that meet the criteria, and it must be provided to customers upon request. This information may be in the form of booklets or on computers (supplied by the establishment), counter cards, handouts, kiosks, posters, tray liners, or signs. The nutrition information may come from nutrient databases, cookbooks, laboratory analyses, or other similar means. The nutrition information must include:

- Total Calories
- Calories From Fat
- Total Fat
- Saturated Fat
- *Trans* Fat
- Cholesterol
- Sodium
- Total Carbohydrates
- Dietary Fiber
- Sugars
- Protein

DID YOU KNOW?

When eating out, you can ask which ingredients are being used to prepare your meal. You can also ask to see nutrition information and then choose menu options that are lower in saturated fat, sodium, and sugars, as well as higher in nutrients to get more of (e.g., fiber).



Tips for Eating Out

1. Know your calorie and nutrient needs. Visit www.myplate.gov/myplate-plan to determine your personal daily calorie and nutrient needs.
2. Check posted calorie and nutrient counts or check them online before you eat at a restaurant.
3. Choose smaller portions. When possible, pick a smaller portion size, such as a small order of French fries instead of a large one, or an appetizer instead of a full-sized entrée.
4. Manage larger portions. Split an entrée with a friend or take home part of your meal.
5. Limit add-ons. Ask for syrups, dressings, and sauces to be served "on the side," then use less.
6. Choose healthy options. Choose dishes that include more fruits, vegetables, and whole grains and limit foods described with words like creamy, fried, breaded, battered, or buttered (these are typically higher in calories).
7. Watch your beverages. Choose such options as water or fat-free (skim) or low-fat (1%) milk more frequently than options that are high in calories but have few or no beneficial nutrients, such as energy drinks, fruit drinks, soft drinks, and sports drinks.

Source: FDA Fact Sheet: Calories on the Menu: Information for Consumers www.fda.gov/media/121009/download

Additional reference: www.fda.gov/food/nutrition-education-resources-materials/calories-menu

ACTIVITY 1: TWO MEALS ON THE GO!

TIME Two 45-Minute Class Periods

ACTIVITY AT A GLANCE

In this activity, students will do an Internet search for two meals they would eat from a fast food restaurant and locate the nutrition information for each item in the meal. Students then use this data to determine how healthy their meals are.

Retail Food Safety companion content: If you also teach food safety and/or microbiology, check out the Fast Food Footwork activity (Module 4) in the ***Science and Our Food Supply: Investigating Food Safety from Farm to Table***-*Teacher's Guide for High School Classrooms* for important food safety content for people working behind the counter in fast food establishments.

GETTING STARTED

MATERIALS

- Internet access
- Copies of FDA's Fact Sheet: **Calories on the Menu: Information for Consumers** www.fda.gov/media/121009/download **OR** Copies of FDA's Slide Presentation: **Calories on the Menu: Information for Consumers** www.fda.gov/media/124766/download
- Menus from various fast food restaurants
- Copies of **Two Meals on the Go!** worksheet for each student

ADVANCE PREPARATION

Note: If technology is not available, obtain or download menus and Nutrition Facts Information from popular fast food restaurants in your area. *(See Optional Resources on page 77 for links to menus and Nutrition Facts Information.)*

INTRODUCTION

Begin the lesson by displaying the menus from various fast food restaurants. Ask students the following questions:

- *Do you like eating out?*
- *How often would you like to eat out?*
- *What meal might you choose if you ate out?*
- *Have you ever been away from home on a road trip with family, friends, or classmates and had to eat two meals on the go in one day?*

Continue the discussion by asking:

- *Do you know how many calories were in those meals?*
- *Do you know how many calories you need each day?*
- *Are you aware of how much sodium and saturated fat are in those meals?*

TWO MEALS ON THE GO!

STUDENT PROCEDURE

1. Determine your personal daily calorie needs and your sodium and saturated fat limits by using the My Plate Plan calculator (www.myplate.gov/myplate-plan). Click on the total calories number shown to see your plan. Then click on Download Plan to see your recommended goals and limits.

   If you don't want to use your own information, create a fictional student and use his or her information.

2. Review your copy of FDA's Fact Sheet: *Calories on the Menu: Information for Consumers* and discuss these questions with your group:
   - *Has anyone noticed calories and nutrients displayed on a restaurant menu?*
   - *If so, was this information useful to you in making a menu selection?*
   - *How would you use menu labeling to make menu selections?*

3. Record your goals and limits on your worksheet **Two Meals on the Go!**

4. Record the name of one or two fast food restaurants and the components of two meals (breakfast, lunch or dinner) that you would like to eat or have eaten there.

5. Use the Internet to research two meals and record the appropriate data on the worksheet.

   Reminder: Only covered establishments must meet the menu labeling requirements and covered establishments are only required to post calories online if the customer can use the online menu to place an order, so not all establishments will have their calorie/nutrition information online. If the information is not online, then choose another restaurant.

6. Compare your meals' total calories, saturated fat, and sodium to your daily needs from the MyPlate calculator. Determine how healthy your meals are and how to make them more healthy.

7. Discuss your findings with your class. Was it easy or hard to find calorie and nutrition information for your meals? Was the information presented in an easily understood format? Explain your answers.

PUBLIC HEALTH CONNECTION

- Throughout the past century, rates of chronic diseases (many of which are related to poor quality diet and physical inactivity) have increased.
- Today, 60 percent of adults have one or more diet-related chronic diseases.
- Following a healthy eating pattern at an appropriate calorie level helps to achieve and maintain a healthy body weight, support nutrient adequacy, and reduce the risk of chronic disease.
- Consuming too many calories can contribute to a variety of health issues such as obesity and chronic diseases like cardiovascular disease and type 2 diabetes.
- Tweens and teens who have healthy eating patterns are more likely to perform better at school.

RESOURCES

1. Restaurant nutrition information: www.nutritionix.com/brands/restaurant
2. Get restaurant nutrition information from the Restaurant and Fast Food Nutrition Facts list. Free calorie information and menu analysis for the several popular restaurants is also available here: www.verywellfit.com/weight-loss-dining-out-advice-overview-4581838
3. Nutrition facts from the most popular fast food restaurants: http://fastfoodnutrition.org/
4. Nutritional information for fast food chains and restaurants: www.calorieking.com/foods/calories-in-fast-food-chains-restaurants_c-Y2lkPTIx.html

TWO MEALS ON THE GO!

REVIEW

- ***Why are calories important?*** (Calories provide nutrients and energy for your body. Whether you are trying to lose, gain, or maintain weight, the key is to balance the number of calories you consume with the number of calories your body uses ["burns"].)

Review the FDA Fact Sheet: Calories on the Menu: Information for Consumers.

- ***Which of the tips are you most likely to use and why?***
- ***Which are you least likely to use and why?***

Tips for eating out include:

1. *Know your calorie and nutrient needs*. Visit MyPlate Plan to determine your personal daily calorie and nutrient needs.
2. *Compare foods.* Check posted calorie counts or check calorie counts online before you eat at a restaurant.
3. *Choose smaller portions.* When appropriate, choose a smaller portion size such as a small order of French fries instead of large, or an appetizer instead of a full-sized entrée.
4. *Manage larger portions.* Split an entrée with a friend or take home part of your meal.
5. *Limit add-ons.* Ask for syrups, dressings, and sauces to be served "on the side"—and then use less.
6. *Choose healthy options.* Choose dishes that include more fruits, vegetables, and whole grains. Limit foods described with words like creamy, fried, breaded, battered, or buttered (these are typically higher in calories).
7. *Watch your beverages.* Choose such options as water or fat-free (skim) or low-fat (1%) milk more frequently than options that are high in calories but have few or no beneficial nutrients such as energy drinks, fruit drinks, soft drinks, and sports drinks.

EXTENSIONS

Students could do one or more of the following activities:

1. Write letters to restaurant chains thanking them for providing useful nutrition information or offering suggestions about how their information could be provided differently to make it easier to use.
2. Make posters that show the nutritional information for the two versions of their meal (original and healthier option), including the calorie total of both meals compared with their daily calorie needs. Display posters for others to see.

SUMMARY

Menu labeling by restaurants can help you make informed and healthful decisions about meals away from home.

UP NEXT

Now that you are aware of where to find calories on menus and menu boards in restaurants, let's look at vending machines and between-meal snacks.

RESOURCES

- *Dine Out/Take Out*
  www.myplate.gov/tip-sheet/dine-out-take-out
- *Healthy Eating Away From Home (for Teens)*
  kidshealth.org/Nemours/en/teens/eating-out.html
- *Make Better Beverage Choices*
  www.myplate.gov/tip-sheet/make-better-beverage-choices
- *Take Charge of Your Health: A Guide for Teenagers*
  www.niddk.nih.gov/health-information/weight-management/take-charge-health-guide-teenagers
- *Tips for Making Healthy Choices When Eating Out*
  www.fda.gov/media/131159/download

STUDENT WORKSHEET

ACTIVITY 1: TWO MEALS ON THE GO!

Name _____ Date _____ Class/Hour _____

Directions:

Step 1: Determine the personal daily calorie needs and the sodium and saturated fat limits for you or someone else by using the My Plate Plan calculator at www.myplate.gov/myplate-plan

Step 2: Record the name of your fast food restaurant(s) and the components of two meals that you would like to eat or have eaten there. Be sure to indicate if the meal is a breakfast, lunch, or dinner.

Step 3: Use the Internet to search the fast food restaurant(s) website. Locate the nutrition information for the items and record it in the data table.

[Remember that online menu information will depend upon (1) whether or not the chosen establishment is covered under the menu labeling requirements, and (2) whether a customer can use the online menu to place an order. Additionally, restaurants may provide the information voluntarily.]

Personal Daily Calorie Needs _____

Personal Daily Sodium Limit _____

Personal Daily Saturated Fat Limit _____

Meal 1: Name of Restaurant _____ **Circle one:** breakfast lunch dinner

Meal 2: Name of Restaurant _____ **Circle one:** breakfast lunch dinner

	Food Selection	Total calories	Saturated Fat (g)	*Trans* fat (g)	Sodium (mg)	Total Carbohydrates (g)	Dietary Fiber (g)	Sugars (g)	Protein (g)
Meal 1									
Meal 1 Total									
Meal 2									
Meal 2 Total									
Total for Both Meals									

Things to remember for this activity

- The *Dietary Guidelines for Americans* also recommends consuming less than 10% of calories per day of saturated fats.
- Each gram of protein has 4 calories; each gram of carbohydrate has 4 calories; and each gram of fat has 9 calories.

STUDENT WORKSHEET

TWO MEALS ON THE GO! (CONTINUED)

Name _____ Date _____ Class/Hour _____

1. If you eat these meals, how many more calories should you eat for the rest of the day (based on your daily calculated calorie needs)? _____

2. How many of the calories in these meals are from saturated fat? _____

3. If you eat these meals, how much more saturated fat can you eat the same day? _____

_____

4. How much of your daily sodium would you consume if you eat these two meals in one day? _____

_____

5. How much more sodium can you eat the same day? _____

6. Based on the data you collected, do you think these are healthy meals? Justify your response. _____

_____

7. Pick one meal that you could change so that it would meet your goals. Calculate your revised nutrient totals and record them below.

Food Selection	Total calories	Saturated Fat (g)	*Trans* fat (g)	Sodium (mg)	Total Carbohydrates (g)	Dietary Fiber (g)	Sugars (g)	Protein (g)
Modified Meal								
Totals for Modified Meal								
Totals for Unchanged Meal								
New Two-Meal Totals								

8. How would the change in your menu affect your total calories, saturated fat, and sodium?

_____

_____

STUDENT REVIEW WORKSHEET
TWO MEALS ON THE GO!

Name _____ Date _____ Class/Hour _____

1. What is meant by a healthy eating pattern?

_____

_____

_____

2. What information will you be able to find on most restaurant menus that will help you make healthy decisions about the food you order? Why is this information important?

_____

_____

_____

3. Which restaurants are required to meet the menu labeling requirements?

_____

_____

_____

4. In restaurants where the calorie information is on the menu, what additional information should the restaurant have available for the consumer?

_____

_____

_____

5. When you made the choices for your healthier fast food meal, which nutrients played the most important role in making those choices?

_____

_____

_____

6. List at least three tips you would use to order a healthier meal when eating out, and explain why you would use them.

_____

_____

_____

7. Why is it important to know your personal daily calorie needs, and your sodium and saturated fat limits?

_____

_____

_____

BACKGROUND INFORMATION

PART 2

Vending Machines

Sometimes when you are hungry or skip a meal, you might look for something quick, easy, and convenient. Vending machine snacks may be the answer—but are they good for us? Snacks make up more than one fourth of the daily calories consumed by tweens and teens. It's important that those snacks are healthy.

Calorie information is required for vending machine operators who own or operate 20 or more vending machines. Vending machine operators who are not covered by the requirements can voluntarily register to be covered. Unless calories are already visible on the actual snack package before purchase, the calorie labeling may be shown on a:

- Sign
- Sticker
- Poster
- Small placard
- Electronic or digital display near the food item or selection button

The calories must be declared for the entire item as sold (not per serving). This includes vending machines that sell:

- Soft drinks
- Packaged snacks
- Hot-and-cold cup beverages
- Refrigerated prepared food (such as those sold from turnstile vending machines)
- Handfuls of nuts or candies (such as those sold from bulk vending machines)

Game machines (such as claw machines in arcades) are not covered, even if they sometimes dispense candy or other edible items as part of the game.

Smart Snacks in School

All food and beverages sold in school vending machines during the school day must meet nutrition standards. The **USDA Smart Snacks in School** regulation applies to school foods sold à la carte, in the school store, and from vending machines. To qualify as a Smart Snack, a snack must first meet the following general nutrition standards (from the regulation):

- be a grain product that contains 50 percent or more whole grains by weight (be whole grain-rich/have a whole grain as the first ingredient); or
- have as the first ingredient a fruit, a vegetable, a dairy product, or a protein food; or
- be a combination food that contains at least ¼ cup of fruit and/or vegetable; and
- contain 10% of the Daily Value (DV) of one of the nutrients to get more of (calcium, dietary fiber, iron, potassium, or vitamin D), and
- the food must meet the nutrient standards for calories, sodium, sugar, and fats.

Nutrient	Snack
Calories	200 calories or less
Total Fat	Less than 35% of calories
Saturated Fat	Less than 10% of calories
Trans Fat	0g
Sodium	200 mg or less
Sugar	35% by weight or less

DID YOU KNOW?

Vending machine definition

A vending machine is a self-service machine that, upon insertion of a coin, paper currency, token, card, or key, or by optional manual operation, dispenses servings of food in bulk or in packages, or prepared by the machine, without the necessity of replenishing the machine between each vending operation.

ACTIVITY 2: ✔ YOUR SNACKS!

TIME One 45-Minute Class Period

ACTIVITY AT A GLANCE

Students will compare nutrition facts from their favorite snacks with similar snacks (Smart Snacks) served in schools.

TIME TO TUNE IN

HealthWorks! Healthy Living Series: Healthy Snacks

www.youtube.com/watch?v=jUWX5cHKxJg

GETTING STARTED

MATERIALS

✔ **Your Snacks** worksheet (one for each student)

Empty snack packages

TEACHER NOTE

If your school does not have vending machines, collect packages from snacks that also have healthier versions, such as regular potato chips and oven-baked chips.

ADVANCE PREPARATION

- Students can work individually or in groups.
- Collect empty vending machine snack packages with the Nutrition Facts label that are sold in schools.
- If your school has vending machines for students, use packages from items that are sold in those vending machines.
- Consider including a snack package that contains more than one serving, to use during class discussion.
- *Optional:* Ask students to bring in favorite empty snack packages that are similar to those sold in school vending machines. Snacks may include:
  - Candies
  - Candy bars
  - Corn chips
  - Crackers
  - Potato chips
  - Pretzels
  - Cookies
  - Popcorn
  - Other snacks

INTRODUCTION

Let's talk about snacks:

1. *What are some of your favorite snacks? Are they healthy?*
2. *How do you know if your snack is healthy?*
3. *Have you read the nutrition information for the snacks?*
4. *Do you eat the snacks that are provided in school vending machines?*
5. *Why should you follow a healthy eating pattern?*

✔ YOUR SNACKS!

STUDENT PROCEDURE

1. Look at the sample packages to determine if they are one single serving or if there is more than one serving in any of the packages.
2. Choose two empty packages of snacks that are sold in vending machines for your group.
3. Complete the information for your snacks in the left column of your worksheet and the information from the school snack on the right column.*
4. Place a ✔ if the snack meets the criteria as a Smart Snack and X if it does not.

   Share your information with the class and discuss the importance of healthy snacking.

* Remember that school snacks must meet federal requirements.

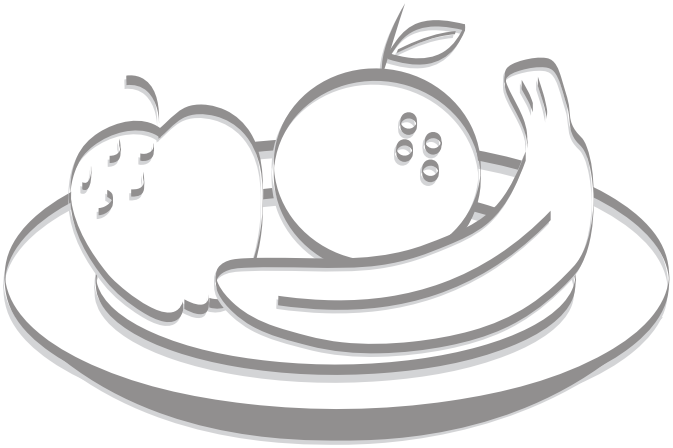
REVIEW

Where will you find calorie information that is required for vending machine operators who own or operate 20 or more vending machines? (The calories will be shown on a sign [such as on a small placard, sticker, or poster] or on electronic or digital displays near the food item or selection button and the calories must be declared for the entire item as vended [not per serving]. Calories may also appear on the food package itself— for example, by showing the Nutrition Facts label or a declaration on the front of package before the item is vended.)

What makes a snack a "Smart Snack" in schools?
(To qualify as a Smart Snack, a snack must first meet the following general nutrition standards [from the regulation]:

- Be a grain product that contains 50 percent or more whole grains by weight [be whole grain-rich/have a whole grain as the first ingredient]; or
- Have as the first ingredient a fruit, a vegetable, a dairy product, or a protein food; or
- Be a combination food that contains at least ¼ cup of fruit and/or vegetable; and
- Contain 10% of the Daily Value (DV) of one of the nutrients to get more of (calcium, dietary fiber, iron, potassium, or vitamin D), and
- The food must meet the following nutrient standards for calories, sodium, sugar, and fats:

Nutrient	Snack
Calories	200 calories or less
Total Fat	Less than 35% of calories
Saturated Fat	Less than 10% of calories
Trans Fat	0g
Sodium	200 mg or less
Sugar	35% by weight or less



✔ YOUR SNACKS!

EXTENSIONS

Students could do one or more of the following activities:

1. Display images of vending machines. Discuss with classmates the snacks that may be found in a vending machine; do a web search on various snacks to calculate the saturated fat calories.
2. If your school has vending machines, critique what is offered and make additional healthy suggestions.
3. Use the Smart Snacks Product Calculator to determine whether your snack is a Smart Snack: foodplanner.healthiergeneration.org/calculator/
4. Invite your school district's Director of Food and Nutrition Services to talk with your class about the school lunch program and vending machine selections.

SUMMARY

Calorie labeling on vending machines can help you make informed and healthful decisions about snacks.

RESOURCES

- *Dietary Guidelines for Americans, 2020-2025*
  www.dietaryguidelines.gov/sites/default/files/2021-03/Dietary_Guidelines_for_Americans-2020-2025.pdf
- *FDA Fact Sheet: Calories on the Menu: Information for Consumers*
  www.fda.gov/media/121009/download
- *Healthy Eating on the Go*
  www.nhlbi.nih.gov/health/educational/wecan/downloads/matte25.pdf
- *Kids Health: Eating Well While Eating Out*
  http://kidshealth.org/en/teens/eating-out.html?WT.ac=ctg#catnutrition
- *MyPlate*
  www.myplate.gov
- *Nutrition and Healthy Eating – How to Track Saturated Fat*
  www.mayoclinic.org/healthy-lifestyle/nutrition-and-healthy-eating/expert-answers/fat-grams/faq-20058496?p=1
- *Portion Distortion*
  www.nhlbi.nih.gov/health/educational/wecan/eat-right/portion-distortion.htm
- *USDA FNS Guide to Smart Snacks in School*
  www.fns.usda.gov/tn/guide-smart-snacks-school
- *Tools for Schools: Focusing on Smart Snacks*
  www.fns.usda.gov/cn/tools-schools-focusing-smart-snacks

STUDENT WORKSHEET

ACTIVITY 2: ✔ YOUR SNACKS!

Name _____ Date _____ Class/Hour _____

Everyone likes to snack! But is your snack healthy for you? Let's find out.

Compare two of your favorite snacks with two school snacks for optimal nutrition. Use the information from the Nutrition Facts label on the packages to complete the tables. Place a ✔ if it meets the criteria as a Smart Snack and **X** if it does not.

List the criteria for a snack to be a Smart Snack:

Nutrient	Snack
Calories	
Total Fat	
Saturated Fat	
Trans Fat	
Sodium	
Sugar	

Your Snack	✔ or X		✔ or X	School Snack
		Name of Snack		
		Serving Size		
		Calories		
		Total Fat		
		Saturated Fat		
		Trans Fat		
		Sodium		
		Sugar		

Your Snack	✔ or X		✔ or X	School Snack
		Name of Snack		
		Serving Size		
		Calories		
		Total Fat		
		Saturated Fat		
		Trans Fat		
		Sodium		
		Sugar		

1. Did your snack meet the criteria for a Smart Snack? _____
2. How do you know? _____
3. How will this make you rethink your snack choices? _____
4. Explain how likely you are to choose a Smart Snack instead of another snack in a grocery store. _____

_____

STUDENT REVIEW WORKSHEET
✔ YOUR SNACKS

Name _____ Date _____ Class/Hour _____

1. What nutrient information must be shown on snacks sold in some vending machines? How would this information influence the snack you purchase from this vending machine?

_____

_____

_____

_____

2. What is a **Smart Snack**? How is this snack different from ones not sold in schools?

_____

_____

_____

_____

3. Do you think that snacks sold in schools should be healthier than those sold in the supermarket? Please provide your reasons.

_____

_____

_____

_____

4. An "anytime" snack has been defined as a snack that is nutrient dense. Which of the snacks you reviewed for this activity would belong to this group? What information did you use to put the snack(s) in this group?

_____

_____

_____

_____

5. A "sometimes" snack has been defined as a snack high in empty calories, saturated fats, added sugars, or sodium and are foods that should be limited. Which of the snacks you reviewed for this activity would belong to this group? What information did you use to put the snack(s) in this group?

_____

_____

_____

_____

CREDIBLE SOURCE GUIDE

The internet is such an extensive source of information that it can be challenging to find credible information. A credible source is one that is balanced and is written with factual evidence. Credible sources can vary with the audience, topic, and discipline. To determine if a source can be trusted, consider the following characteristic of a credible source:

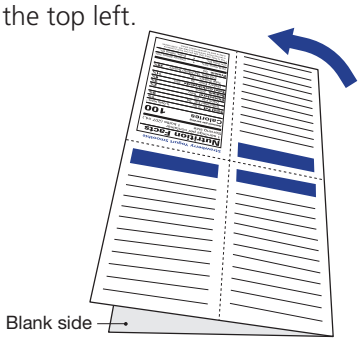
Author	Information that includes an author or additional contact information can be a good indicator of credible work. An author who is willing to identify him/herself as the writer validates this site or work. The author's credibility can also be verified through searches for their background as well as for additional articles by the author.
Date	The date of research information shows whether the information is recent. The validity of older information can be confirmed by considering whether more recent information supports it.
Sources	The information found on websites or articles should have citations, i.e., list sources of the information included in the article.
Domain	Many domains (ex: .com, .org, and .net) can be purchased and used by any person or group. The domain .edu is used by higher education schools, colleges and universities; the .gov domain is reserved for government websites. Information found on the .edu and .gov domains usually host credible information, but sometimes students are given a .edu address for their personal use by universities — be careful when citing). The .org domain is usually used by non-profit organizations that may host articles or information that supports a specific perspective and is not solely educational information.
Site Design	Often, a well-designed site can indicate reliable information (however, this is very subjective). A well-designed site or article helps make information more easily accessible.
Writing Style	Poor spelling and grammar indicate that the site or article may not be credible. Credible sites carefully review writing style and grammar to ensure that information is clear, concise, and accessible to its audience.

There are always exceptions to any rule; sometimes there are credible sites and articles that don't conform to these six categories. If you are unsure that the site you are using is credible, crosscheck the information with other sources that are known to be credible, such as an encyclopedia or another reliable source about the subject.

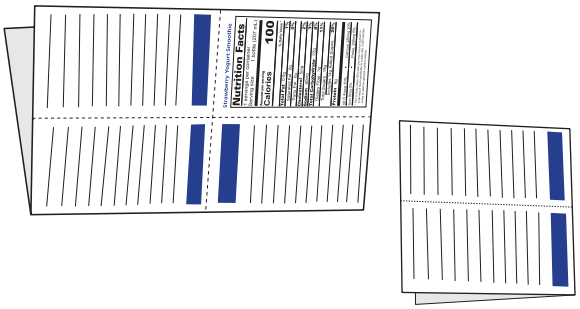
Adapted from uknowit.uwgb.edu/page.php?id=30276

Nutrition Facts Label Mini-Book Folding Instructions

1 Place the Mini-Book blank-side up and fold in half from the longest side so that Nutrition Facts Label is on the top left.

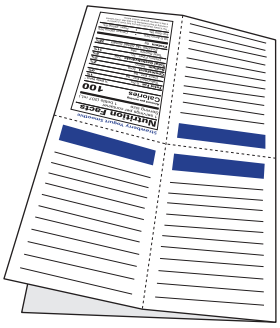


2 Rotate paper 90° clockwise so the label is now in the top, right corner. Fold in half, toward the left.



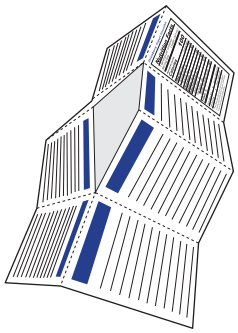
3 Rotate paper 90° counterclockwise and fold in half from right to left.

4 Unfold the last two folds from Steps 2 and 3, so that the Mini-Book is in the same orientation as Step 1.

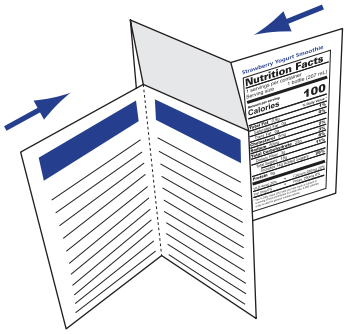


5 Use scissors to cut **halfway** through the folded side.

6 Unfold and lay the Mini-Book flat. Fold the center of the Mini-Book along the crease.



7 Stand the Mini-Book up. Push in from the sides to close the center.



8 Fold at the center so that the Nutrition Facts Label is on the front cover of the Mini-Book.

GLOSSARY

For the purposes of these materials, these terms are defined as follows.

Added Sugars includes sugars that are either added during the processing of foods, or are packaged as such (e.g., a bag of table sugar), and include sugars from syrups and honey, and sugars from concentrated fruit or vegetable juices.

Calories refer to the "energy" supplied from all food sources (fat, carbohydrate, protein, and alcohol).

Cholesterol is a waxy, fat-like substance produced primarily by the liver in both humans and animals. It is found in all cells of the body. Cholesterol in food is referred to as "dietary cholesterol" and is found only in animal products.

Dietary Fiber, or fiber, is sometimes referred to as "roughage." It is a type of carbohydrate made up of many sugar molecules linked together. But unlike other carbohydrates (such as starch), dietary fiber is bound together in such a way that it cannot be readily digested in the small intestine.

An **Essential Nutrient** is a vitamin, mineral, fatty acid, or amino acid required for normal body functioning that either cannot be synthesized by the body at all or in amounts adequate for good health, and thus must be obtained from a dietary source. Some food components that are not essential, such as dietary fiber, are still important for health

A **Healthy Eating Pattern** is the combination of foods eaten over time – at an appropriate calorie level – that provide variety and give you the nutrients you need to maintain your health, feel good, and have energy. These nutrients include protein, carbohydrates, fat, vitamins, minerals, and water.

The **Ingredient List** shows each ingredient in a food by its common or usual name in descending order by weight.

A **Lipid** is an organic compound that is oily to the touch and insoluble in water. Lipids include fats, oils, and waxes and are a source of stored energy. The terms lipid and fat are often used interchangeably.

Minerals are inorganic substances that are not made by living things, but they are important for human growth, development, and normal body functioning. Minerals are naturally found in soil and water and are absorbed by plants, which are then eaten by people and other animals. Examples of minerals are iron, calcium, and potassium. People obtain minerals from both the plant and animal products they eat.

Monounsaturated Fatty Acids (MUFAs) are fats that have one double bond between the carbon atoms and are usually liquid at room temperature. Plant sources rich in monounsaturated fats include vegetable oils (such as canola and olive oil), avocados, peanut butter, and most nuts.

Nutrient-dense foods provide vitamins, minerals, and other health-promoting components and have no or little added sugars, saturated fat, and sodium. A healthy dietary pattern consists of nutrient-dense forms of foods and beverages across all food groups, in recommended amounts, and within calorie limits.

Nutrients are substances in food that contribute to growth and health. Nutrients provide energy, cell-building and structural materials, and agents that regulate body chemistry.

%DV stands for **Percent Daily Value**, which is found on the Nutrition Facts label. It is a guide to how much a nutrient in a serving of the food contributes to a daily diet. For example, if the label lists 15% DV for calcium, it means that one serving of the food provides 15% of the calcium most people need each day.

Phytochemicals are chemical compounds produced by plants, generally to help them resist fungi, bacteria, and plant virus, as well as consumption by other pests.

Polyunsaturated Fatty Acids (PUFAs) are fats that have two or more double bonds between the carbon atoms and are usually liquid at room temperature. Primary sources of this fat are vegetable oils; fatty fish such as salmon, mackerel and sardines; and some nuts and seeds. Polyunsaturated fats provide essential fats.

Saturated Fat is found in higher proportions in animal products and is typically solid at room temperature. The exceptions are seafood (which contains a lower proportion of saturated fat compared to other animal products) and certain tropical plant oils, such as coconut oil, palm oil, and palm kernel oil (which contain a higher proportion of saturated fat compared to other plant products).

Saturated Fatty Acids are fats that have no double bonds between the carbon atoms. They are called "saturated" because all the spaces on the fat molecule that can hold a hydrogen atom do so and are "full" – that is, the molecule is "saturated" with hydrogen atoms. Saturated fats are usually solid at room temperature. Major sources include butter and beef fats, and tropical oils such as coconut or palm oils. The human body makes all the saturated fat that it needs, so it is unnecessary to consume additional saturated fat.

Serving Size is based on the amount of food that is customarily eaten at one time. All of the nutrition information listed on a food's Nutrition Facts label is based on one serving of that food.

Servings per Container indicates the total number of servings in the entire food package or container.

A **Triglyceride** is a compound formed from a glycerol and three fatty acid groups. Triglycerides are the main constituents of natural fats and oils.

***Trans* Fat** is an unsaturated fat, but it is structurally different than unsaturated fat that occurs naturally in plant foods. *Trans* fat has detrimental health effects and is not essential in the diet. Most *trans* fat is man-made (designed to improve texture and help food last longer).

Vitamins are organic substances made by plants and animals, which are then eaten by humans. There are 13 vitamins: vitamins A, C, D, E, K, and the B vitamins (thiamin, riboflavin, niacin, pantothenic acid, biotin, vitamin B6, vitamin B12, and folate). You can get all your vitamins from the foods you eat, but your body also makes vitamins D and K.

Whole Grains include the entire grain seed (usually called the "kernel"), which consists of the bran, germ, and endosperm — nothing has been added or taken away by processing. Whole grains are consumed either as a single food (such as wild rice or popcorn) or as an ingredient in food, such as in cereals, breads, or crackers.

FROM MODULE 1

STUDENT WORKSHEET SAMPLE ANSWERS

ACTIVITY 1: DISSECTING THE NUTRITION FACTS LABEL

Name _____ Date _____ Class/Hour _____

1. Arrange the cards in order of the food you think has the most protein per serving to the food you think has the least protein per serving. Complete Column 1 in the data table below with that information.
2. After you read the food product nutrition labels, rearrange the foods in the correct order of most to least Protein per Serving – record that in Column B. If you find 2 products with the same information, list them alphabetically.
3. Record the arrangement of the foods according to the amount of Protein per Serving listed on the Nutrition Facts label for each food. In the last column, mark an up arrow (↑) if the actual ranking was higher than you initially recorded, a down arrow (↓) if it was lower than you initially recorded, and an equal mark (=) if it was the same as your ranking. [Note: If you are filling in this worksheet online, you can write Up or Down for the arrow direction.]

Data Table to Rank Foods According to Protein per Serving

A List the foods in order of those you think have the **most** Protein per Serving to the **least** Protein per Serving	B Look at the Nutrition Facts label for each product and list the products in order from those with the **most** Protein per Serving to those with the **least** Protein per Serving. Include how many grams of protein for each one.	C Compare each food position in column A with the same food's position in column B. Record ↑ if the position in B is higher, ↓ if the position in B is lower, and = if the position is the same in columns A and B.
	Spaghetti with Meatballs – 22 grams	
	Chocolate Protein and Vitamin Shake – 17 grams	
	Cheese Pizza – 15 grams	
	Chicken Nuggets – 13 grams	
	Chocolate Peanut Butter Protein Bar – 12 grams	
	Southwestern Chicken Salad – 12 grams	
	Plain Bagel – 9 grams	
	Ham and Cheese Sandwich – 8 grams	
	Macaroni and Cheese – 8 grams	
	Chicken Soup – 6 grams	
	Peach Low-Fat Yogurt – 6 grams	
	Strawberry Yogurt Smoothie – 6 grams	

1. What information did your group use to initially rank the foods according to the amount of protein per serving? _____
   We looked for products that contained meat because meat is usually protein.
2. How accurate was your group's initial ranking of the food products? Answers will vary. Students could indicate the number of correct matches vs. the number of incorrect matches.
3. What food products surprised your group by their ranking and why? Answers will vary. Students should be specific in what products surprised them and why.
4. Why do you think it is important to understand the Nutrition Facts label? It is important to understand the NFL so they can make good choices in the foods they eat.

Nutrition Facts Label Mini-Book SAMPLE ANSWERS

% DAILY VALUE

The % Daily Value shows how much a nutrient in a serving of the food contributes to a total daily diet.

NUTRIENTS TO GET MORE OF

The Nutrients to Get More Of are dietary fiber, Vitamin D, calcium, iron, and potassium.

NUTRIENTS TO GET LESS OF

The Nutrients to Get Less Of are saturated fat, sodium, and added sugars.

VITAMINS AND MINERALS

Vitamins are organic substances naturally present in many plant and animal products. Minerals are inorganic substances found naturally in the soil and water.

CALORIES

Calories refer to the total number of calories or "energy" supplied from all sources (carbohydrate, fat, protein, and alcohol) in a serving of the food.

SERVINGS PER CONTAINER

Servings Per Container shows the total number of servings in the entire food package or container.

SERVING SIZE

Serving Size is based on the amount of food that is usually eaten at one time.

Strawberry Yogurt Smoothie

Nutrition Facts

1 servings per container
Serving size 1 bottle (207 mL)

Amount per serving	
Calories	**100**
	% Daily Value *
Total Fat 0.5g	**1%**
Saturated Fat 0g	**0%**
Trans Fat 0g	
Cholesterol 5mg	**2%**
Sodium 80mg	**3%**
Total Carbohydrate 22g	**8%**
Dietary Fiber 3g	**11%**
Total Sugars 18g	
Includes 14g Added Sugars	**28%**
Protein 6g	

Vit.D 4mcg 20%	Calcium 280mg 20%
Iron 0mg 0%	Potas. 290mg 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.

STUDENT WORKSHEET SAMPLE ANSWERS
ACTIVITY 1: SCAVENGER HUNT (CONTINUED)

Name _____ Date _____ Class/Hour _____

Part C

For this Scavenger Hunt, use your set of **Product Cards** to answer the following questions about the products. You can use the information in your **Mini-Book**, the label on the back of the **Product Card**, and the Interactive Nutrition Facts Label website: www.accessdata.fda.gov/scripts/interactivenutritionfactslabel.

For example: "Find the product that is healthiest for saturated fat." Look through the Nutrition Facts labels on the back of the **Product Cards** and find the one that your group thinks is healthiest for saturated fat. Write the name of that product in the correct space below and then give your group's reason for choosing that particular product.

1. Which products are the healthiest for saturated fat? Explain your answer.

a. Product Name Strawberry Yogurt Smoothie, Plain Bagel, and Chicken Noodle Soup b. Grams of saturated fat 0 grams

c. Explanation Each has 0 grams of saturated fat.

2. Which products are the least healthy for saturated fat? Explain your answer.

a. Product Name Southwestern Chicken Salad and Extra Cheesy Pizza b. Grams of saturated fat Each has 5 grams.

c. Explanation Both of these have a high %DV (25 %DV) of saturated fat per serving.

3. Find a product that is a good source of fiber.

a. Product Name Southwestern Chicken Salad b. Grams of fiber 4 grams

c. Explain why you picked this product. This product had more fiber than most of the other choices in this activity.

4. Which product has the highest amount of added sugars per serving? Would you recommend this product to a classmate? Why or why not?

a. Product Name Chocolate Protein & Vitamin Shake b. Amount of Added Sugar 28 grams

c. Recommendation and Explanation We would not recommend the shake because it has 56% DV of Added Sugar.

5. Which product has the highest amount of sodium per serving? Would you recommend this product to your grandparent who has high blood pressure? Why or why not?

a. Product Name Chicken Noodle Soup b. Amount of Sodium 910 milligrams

c. Recommendation and Explanation We would not recommend this product because sodium can contribute to the risk of high blood pressure.

continued on next page

STUDENT WORKSHEET SAMPLE ANSWERS
SCAVENGER HUNT (CONTINUED)

6. A general rule is that 5% DV or less of a nutrient per serving is considered low; 20% DV or more of a nutrient per serving is considered high. Select a product and explain why it falls in either category.

a. Product Name Plain Bagel

b. Explanation The plain bagel falls in the 5% DV or less because it has 0 grams added sugars.

7. Pick one product and look at the section on the Nutrition Facts label that lists vitamins and minerals. What are the vitamins and minerals listed on the selected food label?

a. Product Name Extra Cheesy Pizza

b. Vitamins Vitamin D

c. Minerals calcium, iron, potassium

8. Pick one of the products that you think would be a good source of protein.

a. Product Name Southwestern Chicken Salad

b. Why it is a good source of protein? The salad has 12 grams of protein.

Review your responses to the Scavenger Hunt questions and compare them with two other groups. How close were your responses to those of the other groups?

Answers will vary. The students' answers should be specific in comparing their responses with each other.

STUDENT WORKSHEET SAMPLE ANSWERS
ACTIVITY 2: ANALYZING SERVING SIZE

Name _____ Date _____ Class/Hour _____

DATA TABLE FOR Honey Nut Oat Cereal

(Cereal Name)

Complete these questions and the Data Table with information about your chosen cereal.

1. When you eat cereal for breakfast, how much do you estimate you eat (ex: 1/2 cup, 1 cup, 2 cups, etc.)? 2 cups
2. When you pour your bowl of breakfast cereal, how many servings do you think are in the bowl? 1 portion
3. What does the Nutrition Facts label for your breakfast cereal say about Serving Size? 1 cup (37g)
4. Compare the amount of cereal you actually poured into your bowl with the amount per serving on the label.
   How many servings are in the original bowl of cereal that you poured? 3 servings

	Nutrition Facts label Information	Our Poured Bowl of Cereal	Our Bowl of Cereal with 1 Cup of 2% Milk
Serving Size	1	3	
Calories	140 calories	420 calories	550 calories
Carbohydrates	30 grams	90 grams	102 grams
Fiber	3 grams	9 grams	9 grams
Total Sugars	12 grams	36 grams	47 grams
Added Sugars	12 grams	36 grams	36 grams
Protein	3 grams	9 grams	17 grams

5. Compare the portion size of the bowl you poured with that of 2 other groups. If their portion sizes are different, why do you think they are different?
   Answers will vary. Students should include specific information in their responses.

6. One of the entries in your **Mini-Book** is **Nutrients To Get Less Of**. One of these nutrients is added sugar.
   a. How much added sugar is in one serving of your cereal? 12 grams
   b. How much added sugar is in the portion of cereal that you poured into the bowl without measuring? 36 grams
   Look at the ingredients for your selected cereal and answer the following questions.
   c. What added sugars are in the cereal? Sugar, honey, brown sugar syrup
   d. Why should you try to limit added sugars? Added sugars can increase the risk of developing cavities.
   e. What could you do to make your cereal choice more healthy? We could eat Multi Grain Oat Cereal because it has less added sugar per serving size than Honey Nut Oat Cereal – 8 grams instead of 12 grams.

STUDENT WORKSHEET SAMPLE ANSWERS
ACTIVITY 3: CREATING A NUTRITION FACTS LABEL

Name _____ Date _____ Class/Hour _____

Smoothie Name Raspberry Smoothie

Ingredients: Base Plain Yogurt Volume 1 cup Added Sugars _____ (if any, see page 27)

Fruit Raspberries Volume 1 cup

Sweetener/flavoring (if any) Honey Volume 0.5 Tablespoon Added Sugars 9 grams (if any, see page 27)

A Nutrition Calculator Values for Combined Ingredients from www.verywellfit.com/recipe-nutritionanalyzer-4157076

2 serving per container
Serving size 1 cup
Calories/serving 135
Total Fat 1.9 g
Saturated Fat 1.2 g
Cholesterol 7 mg
Sodium 87 mg
Total Carbohydrates 20.3 g
Dietary Fiber 4 g
Total Sugars 15.7 g
Protein 7.7 g
Vitamin D 0 mcg
Calcium 240 mg
Iron 1 mg
Potassium 382 mg

Assume 0g *Trans* Fat
Added Sugars/Serving 4.5 g

B Label from Label-Making Tool at www.onlinelabels.com/tools/nutrition-label-generator

Nutrition Facts

2 servings per container
Serving size 1 cup

Amount per serving
Calories 140

		% Daily Value *
Total Fat	2 g	3 %
Saturated Fat	1.2 g	6 %
Trans Fat	0 g	
Cholesterol	5 mg	2 %
Sodium	85 mg	4 %
Total Carbohydrate	20 g	7 %
Dietary Fiber	4 g	14 %
Total Sugars	20 g	
Includes 5 g Added Sugars		9 %
Protein	8 g	

Vit.D 0 mcg 0 % • Calcium 240 mg 20 %
Iron 1 mg 6 % • Potas. 380 mg 8 %

* 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.

Check Rounding Rules for These Select Nutrients

	Vit. D	Calcium	Iron	Potas.	Added Sugars
Daily Value	20 mcg	1,300 mg	18 mg	4,700 mg	50 gm
Rounded Amount for Label	Express to nearest 0.1 mcg	Express to nearest 10 mg	Express to nearest 0.1 mg	Express to nearest 10 mg	< 0.5 g express as 0 < 1 g express as "Contains less than 1 g" or "less than 1 g" > 1 g express to nearest 1 g
Un-rounded %DV	%DV = (actual amount (g)/DV) X 100				
Rounded %DV for Label	≤10% level: express to the nearest 2% >10% to ≤ 50% level: express to nearest 5% >50% level: express to nearest 10%				Round to the nearest 1% Round down if ≤ 0.49% and up if ≥ 0.50%
Low %DV option for specific nutrients	If less than 2%, may be declared by a zero or by the use of an asterisk (or other symbol) that refers to another asterisk (or symbol) that is placed at the bottom of the table that is followed by the statement "Contains less than 2 percent of the Daily Value of this (these) nutrient (nutrients)."				If less than 1 gm, may not be included on the Nutrition Facts label, but (in such cases) the statement "Not a significant source of added sugars" is required as a footnote below the table of nutrients.

Use the Rounding Rules to revise the values for Added Sugars, Vitamin D, Calcium, Iron, and Potassium, if needed.

1. Is your recipe a good source for nutrients? If yes, which ones?
   The recipe is a good source of protein, calcium, and potassium. There are 8 grams of protein. There is 20% DV of calcium and 8% DV of potassium.

2. Are there any nutrients in your recipe that should be limited? If yes, which one(s) and give the reasons for each one.
   Saturated fat and sodium should be limited because both can contribute to heart disease.

3. Which nutrients in your recipe would you change to make it a healthier choice? Experiment with your recipe: change an ingredient and/or the amount of the ingredient in the recipe and explain how the nutrients change on the label.
   If I remove the honey, it eliminates the added sugars and reduces the calories in the Smoothie.

STUDENT WORKSHEET SAMPLE ANSWERS
ACTIVITY 1: HOW MUCH ADDED SUGAR IS IN YOUR BEVERAGE?

Name _____ Date _____ Class/Hour _____

This activity will help you to visualize how much sugar is in a beverage.

1. Make a list of your group's top 6 favorite beverages and then respond to these questions:

a. Which beverages on your list do you think have the most added sugars? Cola, chocolate milk drink, large milk shake.

Answers will vary depending on beverages used; these are examples of common beverages chosen by students.

b. Which do you think have the least added sugars?

Energy drink, vitamin water, diet soda

2. Watch these two videos that introduce Total Sugars and Added Sugars:

Added Sugar on the Food Label www.youtube.com/watch?v=PygjyyWvqhU

Hy-Vee KidsFit at Home – Rethink Your Drink www.youtube.com/watch?v=eu9BgqCqIa8.

3. Your teacher has prepared some numbered beverage containers and bags with various amounts of sugar that represent the amount of added sugars in the various beverages. As you look at the containers and bags of sugar, match the bags of sugar you think represents the amount of added sugars in each beverage.

SUGAR IN BEVERAGES DATA TABLE

BEVERAGE	SUGAR BAG (letter)	GRAMS OF ADDED SUGARS	GRAMS OF TOTAL SUGARS	PERCENT OF TOTAL SUGARS FROM ADDED SUGARS (i.e., ADDED SUGARS/TOTAL SUGARS x 100%)
1 Water 10 oz		0 grams	0 grams	0%
2 Diet Cola – 12 oz		0 grams	0 grams	0%
3 Cola – 12 oz		39 ounces	39 ounces	100%
4 Cola – 20 oz		55 grams	55 grams	100%
5 Orange juice – 8 oz		0 grams	22 grams	0%
6 Sport Drink – 20 oz		34 grams	34 grams	100%
7 Low Fat Chocolate Drink – 14 oz		18 grams	39 grams	46%
8 Vitamin Water – 20 oz		27 grams	27 grams	100%
9 Canned Ice Tea – 23 oz		44 grams	44 grams	100%
10 Chilled Coffee Dink – 9.5 oz		22 grams	32 grams	69%
11 Berry Flavored Water – 16.9 oz		0 grams	0 grams	0%
12 Super Soda Fountain Drink – 44 oz		165 grams	165 grams	100%

continued on next page

STUDENT WORKSHEET SAMPLE ANSWERS

HOW MUCH ADDED SUGAR IS IN YOUR BEVERAGE? (CONTINUED)

4. Look at the Nutrition Facts labels for the beverages in this activity and record the Total Sugars and Added Sugars for each on your Worksheet.

In which beverages were the amounts of Total Sugars and Added Sugars the same?

The colas, sport drink, vitamin water, canned ice tea, super soda fountain drink

5. Review the completed data table with your class to learn how well your group matched the beverages with the bags of sugar, and make corrections as needed.

a. List which beverages had the most Added Sugars:

Super soda fountain drink, canned ice tea, low-fat chocolate drink, 20 ounce cola

b. Which findings surprised your group the most?

We were surprised by the high amount of added sugar in the sport drink and vitamin water.

6. Read the **Total and Added Sugars** and **Total Carbohydrates** Fact Sheets and review the videos, *Added Sugar on the Food Label* and *Hy-Vee KidsFit at Home – Rethink Your Drink*, to answer the following questions.

a. Sugar belongs to a group of chemical compounds called carbohydrates. What are the different kinds of carbohydrates that are used by your body?

The different kinds of carbohydrates are dietary fiber, sugar, and sugar alcohols.

b. Why are carbohydrates important for your health?

Carbohydrates are important for the body because they provide energy for the body.

c. The calories in sugary beverages are said to be "empty calories." What does this mean?

Empty calories are those obtained from foods containing few or no beneficial nutrients.

d. What is the difference between naturally occurring sugars and Added Sugars?

Natural sugars are found naturally in food such as fruit. Added Sugars include sugars that are added during the processing of foods (such as sucrose or dextrose), foods packaged as sweeteners (such as table sugar), sugars from syrups and honey, and sugars from concentrated fruit or vegetable juices.

e. For a 2,000-calorie daily diet, the Daily Value for Added Sugars is 50 grams. For a person with this diet, which of the drinks in this activity would you recommend and why?

We would recommend water or berry flavored water because there is no added sugar in these drinks.

f. Why is milk called a "nutrient dense" food?

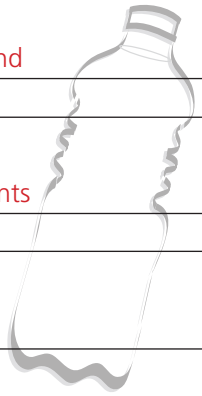
Milk is a nutrient dense food because it has substantial amounts of vitamins, minerals, dietary fiber, and other substances that contribute to a healthy diet.

g. Why is it important to read the labels on the foods and beverages you consume?

It is important to read food labels so you can make wise choices to ensure that you will get the nutrients that your body needs.

h. What are some ways to limit your added sugars intake?

Added sugar intake can be limited by drinking water instead of vitamin water or sports drinks.



7. When all groups have completed their responses to the questions, review the answers with the class.

STUDENT WORKSHEET SAMPLE ANSWERS
ACTIVITY 2: SODIUM IN SNACK FOODS

Name _____ Date _____ Class/Hour _____

What is sodium and why do you think sodium is included in the list of nutrients on the Nutrition Facts label?

1. Watch the video, *Sodium on the Food Label* www.youtube.com/watch?v=wY11olmXrOg and read the FDA Facts Sheet **Sodium in Your Diet** and then answer the following questions:

a. According to the Fact Sheet what is sodium? Sodium is a mineral and one of the chemical elements found in salt.

b. How does this definition compare with your group's definition? Answers will vary. Students' responses should include their definition.

c. How is sodium different from salt? Sodium is an element. Salt is a compound composed of sodium and usually chloride (table salt) and is abundant in nature.

d. Why is sodium called an essential nutrient? We need sodium for many body processes such as fluid balance, muscle contraction, and nervous system functioning.

e. When you look at the Nutrition Facts label on the **Sodium in Your Diet** Fact Sheet, you see there are 430 mg (milligrams) of sodium in that food. If you could visualize 430 milligrams, what do you think it might look like?
Answers will vary. Students' responses should include a reference to a specific amount.

f. One teaspoon of salt contains 2,300 mg of sodium. What is the volume for salt (measured by teaspoon) with 430 mg of sodium, and how does this compare with your previous visualization for 430 mg of sodium?
Students' responses should include comparison of their visualization with the 430 mg.
To figure this out, divide 430 mg by 2,300 mg, which equals 0.19 tsp (1/4 tsp = 0.25, and 1/8 tsp = 0.125)

2. In the **Sodium in Your Diet** Fact Sheet, savory snacks are listed as one of the food categories that contributes about 40% of the sodium you eat. Make a list of your group's favorite snacks.

a. Potato chips

b. Icing-filled chocolate cookies

c. Fish-shaped crackers

d. Crispy cheese snack

e. Pretzels

f. Which snacks on your list do you think contain the most sodium? Remember, a snack does not need to taste salty to contain a lot of sodium.
Answers will vary but should include snacks from the list above.

3. Your **Snack Food** cards show pictures of snacks or information about the amount of sodium in a person's diet. Your teacher has shown you a set of bags of salt that represent the amount of sodium in the items on the cards. Match the picture on the card with the bag of salt that you think represents the amount of sodium in the product in the picture. When you finish matching all of the pictures with bags of salt, record the name of the item on the card in the column beside the amount of salt listed on the **Sodium in Snack Foods Data Table.**

continued on next page

STUDENT WORKSHEET SAMPLE ANSWERS

SODIUM IN SNACK FOODS (CONTINUED)

SODIUM IN SNACK FOODS DATA TABLE		
	SNACK FOOD	
MILLIGRAMS OF SODIUM	OUR ANSWER	CORRECT ANSWER
1 mg		Banana
40 mg		Diet Soda
160 mg		Baked Potato Chips
170 mg		Regular Potato Chips
250 mg		Crunchy Cheese Snack
400 mg		Large Fries
450 mg		Pretzels
920 mg		Vegetable Juice
1,500 mg		Amount Needed by the Body
1,910 mg		Sunflower Seeds
2,300 mg		Recommended Daily Amount
3,440 mg		Average Intake by Americans

When everyone has completed their data tables, review your group's answers with the rest of the class. If you had any incorrect responses, write the correct answer in that column in the data table.

4. Complete the following questions. You can review the video, *Sodium on the Food Label* www.youtube.com/watch?v=wY11olmXrOg and the **Sodium in Your Diet** Fact Sheet.

a. What did you find surprising about the snack foods? Answers will vary. Students' responses should reference specific snack(s).

b. How can eating foods high in sodium affect your health? Foods high in sodium can increase the risk for high blood pressure

c. How much sodium does the body need in order to function each day? 1500 mg

d. How much sodium should we consume daily? 2300 mg

e. What is the average daily intake of sodium by Americans over 2 years of age? 3440 mg

f. From where does most of the sodium in your diet come? Most of the sodium comes from processed foods.

g. Name 3 foods that you eat that are high in sodium. Pizza, French fries, tacos

h. Name 3 foods that you eat that are low in sodium. Strawberries, grilled chicken, corn-on-the-cob

5. Watch the video, *Eating Too Much Salt? 4 Ways to Cut Back…Gradually* www.youtube.com/watch?v=OG8RCuZNbeA.

Describe 3 things you will do to reduce the amount of sodium that you eat. Eat less pizza, change the kinds of snacks, check food labels to see amount of sodium in the food.

6. Refer to your list of snacks. Which do you think are the most healthy and why? Answers will vary. Students' responses should reference looking at the Nutrition Facts label for nutrients in the snacks.

FROM MODULE 3

STUDENT WORKSHEET SAMPLE ANSWERS
MEAL PLANNING – BREAKFAST

Name _____ Date _____ Class/Hour _____

1. Watch *Reading the Food Label*. www.youtube.com/watch?v=s5zroZfMn0I
2. Create a healthy breakfast that will be part of a 2,000-calorie daily plan; aim for about 500-600 calories (total) for this meal.
3. Determine your own calorie needs with the MyPlate Calculator: www.myplate.gov/myplate-plan.
4. Write the names of the foods you choose across the top row of the table below and complete the information about each food in the column below the food. Include the number of servings you plan to consume for each food, and multiply the calories and nutrients by the number of servings.

Use the Nutrition Facts label on your chosen foods to determine the amount of nutrients in each food and how each nutrient contributes to the %DV. To learn more about nutrients to get more and less of, explore the many online resources such as FDA's *Nutrition Information for Raw Fruits, Vegetables, and Seafood* www.fda.gov/food/food-labeling-nutrition/nutrition-information-raw-fruits-vegetables-and-fish.

Food Name(s)	Bacon	Fried eggs	2% Milk	Orange Juice	White Toast	Butter		
Servings Per Container								
Serving Size	2 slices	1 large egg	1 cup	1 cup	1 slice	1 pat		
# of Servings Consumed	2	2	1	1	2	2		
Totals: (nutrient value x number of servings)								
Calories	140	178	122	112	128	72		752
Total Fat (%DV)	12	18	6	1	2	10		49
Saturated fat (%DV)	20	9	15	0	2	26		72
Trans fat*	0	0	0	0	0	0		0
Cholesterol (%DV)	14	140	7	0	0	8		169
Sodium (%DV)	26	20	4	0	12	0		62
Total Carbohydrate (%DV)	0	0	4	9	8	0		21
Dietary Fiber (%DV)	0	0	0	2	4	0		6
Total Sugars* (g)	0	0	12	21	1	0		34
Added Sugars (%DV)	0	0	0	0	0	0		0
Protein* (g)	10	12	8	2	4	0		36
Vitamin D (%DV)	0	10	15	0	0	0		25
Calcium (%DV)	0	4	22	2	4	0		32
Iron (%DV)	0	10	0	3	8	0		21
Potassium (%DV)	0	2	8	11	2	0		23

*While the Nutrition Facts label does not list a %DV for *trans* fat, Total Sugars, or protein, you can record the grams of each of these three components for a food.

What is your cumulative breakfast %DV for each of the following?

Vitamin D 25
Calcium 32
Iron 21
Potassium 23

What is your cumulative breakfast %DV (or milligrams/grams) for each of the following?

Saturated fat 72
Sodium 65
Added Sugars 0

STUDENT REVIEW WORKSHEET SAMPLE ANSWERS
MEAL PLANNING

Name _____ Date _____ Class/Hour _____

1. Where on the Nutrition Facts label can you find serving size and servings per container? The serving size and servings per container are at the very top of the Nutrition Facts label.

2. Why are these important to know? Answers will vary. Students' responses should include being aware of how much they eat.

3. Where can you find how many calories you can get from a food? The number of calories are located in the top portion of the label, under the Serving size.

4. Why is it important to know the amount of energy (calories) you get from a food? Answers will vary. Students' responses should include information about eating the right foods for the right amount of energy daily.

5. How do you use %DV to determine which nutrients in the food are low and which are high? If the %DV is less than 5, the food is low in that nutrient. If the %DV is 20, the food is high in that nutrient.

6. How would you define the phrase 'nutrient-dense foods'? Nutrient-dense foods provide vitamins, minerals, and other health-promoting components and have no or little added sugars, saturated fat, and sodium.

7. Which of the foods in your breakfast meal was the most nutrient-dense? Answers will vary. Orange Juice was the most nutrient-dense food on the sample breakfast chart on page 101.

8. Which was the least nutrient-dense food? Answers will vary. Bacon was the least nutrient-dense food on the sample breakfast chart on page 101.

9. What values did you use to determine this? Answers will vary. Students' responses should be based on highest/lowest levels of saturated fats, Added Sugars, and sodium, and highest/lowest levels of vitamins and minerals.

FROM MODULE 4

STUDENT WORKSHEET SAMPLE ANSWERS ACTIVITY 1: GET THE FACTS ABOUT FATS! — INTERACTIVE LABEL RESEARCH

Name _____ Date _____ Class/Hour _____

The Interactive Label website has some great information to help you make healthier choices. This activity will help you learn more about fats.

1. Open up the link below, click on the Fact Sheets tab, and read the following Fact Sheets: Monounsaturated and Polyunsaturated Fats; Saturated Fat; *Trans* Fat.
2. When you finish reading the Fact Sheets, complete the table and the questions that follow.

Use information found at this link to complete this chart: www.accessdata.fda.gov/scripts/InteractiveNutritionFactsLabel/

Kind of Fat	Health Benefits	Health Risks	Sources	Characteristics
Saturated	Provides energy for the body; helps the body absorb certain vitamins; supports body processes	Associated with an increased risk of developing cardiovascular disease	Animal products, baked goods, dairy products, desserts	The human body makes all the saturated fat it needs. Usually solid at room temperature.
Monounsaturated	Provides energy for the body; helps the body absorb certain vitamins; supports body processes	None, when eaten in moderation	Avocados, mayonnaise, nuts, olives, seeds, soft margarine, vegetable oils	Found in higher proportions in plants and seafood. Usually liquid at room temperature.
Polyunsaturated	Provides energy for the body; helps the body absorb certain vitamins; supports body processes	None, when eaten in moderation	Fish, mayonnaise, nuts, seeds, soft margarine vegetable oils	Found in higher proportions in plants and seafood. Usually liquid at room temperature.
Trans	None	Associated with increased levels of bad cholesterol; associated with increased risk of heart disease	Found in small amounts in some animal products. Formed artificially during food processing.	An unsaturated fat but structurally different than unsaturated fat found naturally in plant foods.

1. Fat is called the best source of energy. Why? Fats provide more calories per gram of food than the other nutrients.
2. How is the amount of energy that you get from fats different from the amount of energy that you get from proteins and carbohydrates? One gram of fat provides 9 calories of energy; carbohydrates and proteins provide 4 calories of energy per gram.
3. Why are fats important for proper growth and health? Fats are needed for energy; to help our bodies absorb certain vitamins; and, support many body processes.
4. What are the major sources of fats in the diet? Desserts, full fat dairy products, fried foods, and animal products (beef, pork, chicken).
5. To reduce the amount of saturated fat in your diet, which foods would you limit and why? Baked goods, full fat dairy products, and snack foods. Saturated fats contribute to developing cardiovascular disease.
6. Create a Venn diagram to compare and contrast saturated and unsaturated fats. (Use a blank sheet of paper if needed.)
7. Explain the differences in carbon bonds in saturated fat, monounsaturated fat, and polyunsaturated fat. Saturated fats have no double bonds between the atoms; monounsaturated fats have one double bond; and polyunsaturated fats have more than one double bond.
8. What are typical food sources for cholesterol? What kind of fats do these same foods typically have more of? Foods from animals contain cholesterol. Foods high in cholesterol are usually high in saturated fat.
9. At the beginning of this activity, you were asked if you thought most Americans consumed too much fat. Based on what you have learned about fats in this lesson, what is your opinion now of this statement? Explain the reasons for your opinion. Dietary fats contribute to coronary heart disease which is the leading cause of death in the United States. Most people consume too much fat.

STUDENT WORKSHEET SAMPLE ANSWERS

ACTIVITY 2: SATURATED AND UNSATURATED FATTY ACID MOLECULAR MODELING

Name _____ Date _____ Class/Hour _____

Saturated Fatty Acid Models		Unsaturated Fatty Acid Models			
Length	Cluster volume	Length	# Double bonds	Double bond position(s)	Cluster volume
1. 12.5″	Width: 3″ Height: 2″ Cluster Volume: 3 x 2 x 12.5 = 75 cubic inches	1. 12.5″	3	2, 5, 8	Width: 6″ Height: 1.5″ Cluster Volume: 6 x 1.5 x 12.5 = 112.5 cubic inches
2. 12.5″		2. 12.5″	2	3, 8	
3. 12.5″		3. 12.5″	2	2, 5	
4. 12.5″		4. 12.5″	2	3, 6	
5. 12.5″		5. 12.5″	3	2, 4, 6	

1. How much difference was there between the cluster volume of your saturated fatty acids and the cluster volume for your unsaturated fatty acids?

Unsaturated had a much greater volume (112.5 cubic inches) than the saturated volume (75 cubic inches).

2. How does cluster volume affect the density of the fatty acids? How would this affect melting point?

An increase in cluster volume decreases the density. The greater the density, the stronger the molecular attraction and the higher the melting point, which causes saturated fats to be solid at room temperature.

3. Why is it important to know about the amount and kind of fat in food?

Diets high in saturated fats are associated with more heart disease compared to diets high in unsaturated fats.

STUDENT WORKSHEET SAMPLE ANSWERS
ACTIVITY 1: TWO MEALS ON THE GO!

Name _____ Date _____ Class/Hour _____

Directions:

Step 1: Determine the personal daily calorie needs and the sodium and saturated fat limits for you or someone else by using the My Plate Plan calculator at www.myplate.gov/myplate-plan

Step 2: Record the name of your fast food restaurant(s) and the components of two meals that you would like to eat or have eaten there. Be sure to indicate if the meal is a breakfast, lunch, or dinner.

Step 3: Use the Internet to search the fast food restaurant(s) website. Locate the nutrition information for the items and record it in the data table.

[Remember that online menu information will depend upon (1) whether or not the chosen establishment is covered under the menu labeling requirements, and (2) whether a customer can use the online menu to place an order. Additionally, restaurants may provide the information voluntarily.]

Personal Daily Calorie Needs 2,200 calories

Personal Daily Sodium Limit < 2,300 mg

Personal Daily Saturated Fat Limit < 24 g

Meal 1: Name of Restaurant Chick-fil-A **Circle one:** breakfast lunch dinner

Meal 2: Name of Restaurant McDonald's **Circle one:** breakfast lunch dinner

	Food Selection	Total calories	Saturated Fat (g)	*Trans* fat (g)	Sodium (mg)	Total Carbohydrates (g)	Dietary Fiber (g)	Sugars (g)	Protein (g)
Meal 1	Bacon, Egg & Cheese Biscuit	420	11 g	0 g	1,290 mg	38 g	2 g	4 g	15 g
	Orange Juice (236 g)	160	0 g	0 g	10 mg	34 g	0 g	30 g	2 g
Meal 1 Total		580	11 g	0 g	1,300 mg	72 g	2 g	34 g	17 g
Meal 2	Quarter Pounder with Cheese	520	12 g	0 g	1,140 mg	42 g	2 g	10 g	30 g
	Small Fries	230	1.5 g	0 g	190 mg	31 g	3 g	0 g	3 g
	Water	0	0 g	0 g	0 mg	0 g	0 g	0 g	0 g
Meal 2 Total		750	13.5 g	0 g	1,330 mg	73 g	5 g	10 g	33 g
Total for Both Meals		1,330	24.5 g	0 g	2,630 mg	145 g	7 g	44 g	50 g

Things to remember for this activity

- The *Dietary Guidelines for Americans* also recommends consuming less than 10% of calories per day of saturated fats.
- Each gram of protein has 4 calories; each gram of carbohydrate has 4 calories; and each gram of fat has 9 calories.

STUDENT WORKSHEET SAMPLE ANSWERS

TWO MEALS ON THE GO! (CONTINUED)

Name _____ Date _____ Class/Hour _____

1. If you eat these meals, how many more calories should you eat for the rest of the day (based on your daily calculated calorie needs)? 2,200-1,330 = 870 calories for the rest of the day

2. How many of the calories in these meals are from saturated fat? 24.5 g sat. fat (1 g fat = 9 calories) 24.5 g = 220.5 calories

3. If you eat these meals, how much more saturated fat can you eat the same day? Combined saturated fat for both meals is 24.5 g. I should not eat additional saturated fat that day, since I have already eaten 0.5 g over my limit.

4. How much of your daily sodium would you consume if you eat these two meals in one day? I would consume 2,630 mg, which is 330 mg more than should be consumed in one day.

5. How much more sodium can you eat the same day? None. It is already 330 mg over the limit.

6. Based on the data you collected, do you think these are healthy meals? Justify your response. Consuming both of these meals on the same day is not healthy, because together they exceed the limits for saturated fats and sodium.

7. Pick one meal that you could change so that it would meet your goals. Calculate your revised nutrient totals and record them below.

	Food Selection	Total calories	Saturated Fat (g)	*Trans* fat (g)	Sodium (mg)	Total Carbohydrates (g)	Dietary Fiber (g)	Sugars (g)	Protein (g)
Modified Meal	Hamburger	250	3.5 g	0 g	510 mg	31 g	1 g	6 g	12 g
	Small Fries	230	1.5 g	0 g	190 mg	31 g	3 g	0 g	3 g
	Water	0	0 g	0 g	0 mg	0 g	0 g	0 g	0 g
Totals for Modified Meal		480	5 g	0 g	700 mg	62 g	4 g	6 g	15 g
Totals for Unchanged Meal		580	11 g	0 g	1,300 mg	72 g	2 g	34 g	17 g
New Two-Meal Totals		1,060	16 g	0 g	2,000 mg	134 g	6 g	40 g	32 g

8. How would the change in your menu affect your total calories, saturated fat, and sodium?
This decreased my total calories from 1,330 calories to 1,060 calories, the total saturated fat from 24.5 g to 16 g, and the total sodium from 2,630 mg to 2,000 mg.

STUDENT REVIEW WORKSHEET SAMPLE ANSWERS
TWO MEALS ON THE GO!

Name _____ Date _____ Class/Hour _____

1. What is meant by a healthy eating pattern?
A healthy eating pattern accounts for all foods and beverages within an appropriate calorie level. It includes fruits, vegetables, protein, dairy, grains, and oil while limiting saturated fats, added sugars, and sodium.

2. What information will you be able to find on most restaurant menus that will help you make healthy decisions about the food you order? Why is this information important?
Most restaurants have to display calories. This information is important to help you make sound nutritional choices.

3. Which restaurants are required to meet the menu labeling requirements?
Restaurants that are part of 20 or more locations and meet certain other criteria have to follow the requirements.

4. In restaurants where the calorie information is on the menu, what additional information should the restaurant have available for the consumer?
The other information that should be available is additional written nutrition information.

5. When you made the choices for your healthier fast food meal, which nutrients played the most important role in making those choices?
The nutrients that played the most important role were sodium and saturated fat.

6. List at least three tips you would use to order a healthier meal when eating out, and explain why you would use them.
Look at the calories so that you can make sound nutritional choices. Drink water instead of soda to reduce the amount of sugar. Choose a salad instead of a large hamburger to limit saturated fats.

7. Why is it important to know your personal daily calorie needs, and your sodium and saturated fat limits?
It is important because too much sodium and saturated fat increase the risk of coronary heart disease.

STUDENT WORKSHEET SAMPLE ANSWERS

ACTIVITY 2: ✔ YOUR SNACKS!

Name _____ Date _____ Class/Hour _____

Everyone likes to snack! But is your snack healthy for you? Let's find out.

Compare two of your favorite snacks with two school snacks for optimal nutrition. Use the information from the Nutrition Facts label on the packages to complete the tables. Place a ✔ if it meets the criteria as a Smart Snack and X if it does not.

List the criteria for a snack to be a Smart Snack:

Nutrient	Snack
Calories	200 calories or less
Total Fat	Less than 35% of calories
Saturated Fat	Less than 10% of calories
Trans Fat	0 grams
Sodium	200 mg or less
Sugar	35% by weight or less

Your Snack	✔ or X		✔ or X	School Snack
Cheddar String Cheese		Name of Snack		Mozzarella Reduced Fat String Cheese
21 grams		Serving Size		24 grams
90 calories	✔	Calories	✔	60 calories
7 grams	X	Total Fat	✔	3.5 grams
4.5 grams	X	Saturated Fat	✔	2 grams
0 grams	✔	*Trans* Fat	✔	0 grams
140 mg	✔	Sodium	✔	180 mg
0 grams	✔	Sugar	✔	0 grams

Your Snack	✔ or X		✔ or X	School Snack
Crispy Rice Snack – Original		Name of Snack		Crispy Rice Snack – Whole Grain
22 grams		Serving Size		40 grams
90 calories	✔	Calories	✔	160 calories
2 grams	✔	Total Fat	✔	4 grams
0.5 grams	✔	Saturated Fat	✔	1 gram
0 grams	✔	*Trans* Fat	✔	0 grams
105 mg	✔	Sodium	✔	140 mg
8 grams	X	Sugar	✔	11grams

1. Did your snack meet the criteria for a Smart Snack? No
2. How do you know? The cheddar cheese stick had too much saturated fat and the Crispy Rice snack had too much sugar.
3. How will this make you rethink your snack choices? Answers will vary.
4. Explain how likely you are to choose a Smart Snack instead of another snack in a grocery store. Answers will vary.

STUDENT REVIEW WORKSHEET SAMPLE ANSWERS

✔ YOUR SNACKS

Name _____ Date _____ Class/Hour _____

1. What nutrient information must be shown on snacks sold in some vending machines? How would this information influence the snack you purchase from this vending machine?

Calorie information for an item is required if the owner of a vending machine has 20 or more machines. Other vendors can voluntarily post the information.

2. What is a **Smart Snack**? How is this snack different from ones not sold in schools?

A Smart Snack must have: 200 calories or less; less than 35% of the calories from total fat; less than 10% of the calories from saturated fat; 0 grams of *trans* fat; 200 mg or less of sodium; and, 35% by weight or less from sugar. Snacks that are not sold in schools do not need to meet these criteria.

3. Do you think that snacks sold in schools should be healthier than those sold in the supermarket? Please provide your reasons.

Answers will vary.

4. An "anytime" snack has been defined as a snack that is nutrient dense. Which of the snacks you reviewed for this activity would belong to this group? What information did you use to put the snack(s) in this group?

In the example on page 109, mozarella reduced fat string cheese and crispy whole grain treat would meet the criteria. Answers will vary.

5. A "sometimes" snack has been defined as a snack high in empty calories, saturated fats, added sugars, or sodium and are foods that should be limited. Which of the snacks you reviewed for this activity would belong to this group? What information did you use to put the snack(s) in this group?

In the example on page 109, cheddar string cheese and crispy rice snack would meet the criteria. Answers will vary.

SCIENCE AND OUR FOOD SUPPLY

Using the **Nutrition Facts Label** to Make Healthy Food Choices

Education Standards by Activity

	Dissecting the Nutrition Facts Label	Understanding Serving Size	Creating a Nutrition Facts Label	Added Sugars in Beverages	Sodium in Snack Foods	Meal Planning	Getting the Facts about Fat	Saturated and Unsaturated Fat Modeling	Two Meals on the Go!	✔ Your Snacks
NGSS – Physical Science: Structure & Properties of Matter	✔				✔		✔	✔		
NGSS – Physical Science: Chemical Reactions					✔		✔	✔		
NGSS – Life Science: Matter & Energy in Organisms & Ecosystems	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
NGSS - Engineering: Engineering Design	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
AL - Food, Health & Lifestyle	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
FCSNS - Food Science, Dietetics, & Nutrition	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
FCSNS - Nutrition & Wellness	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
NHES (1)	✔	✔		✔	✔	✔	✔	✔	✔	✔
NHES (2)	✔	✔		✔	✔	✔	✔	✔	✔	✔
NHES (3)	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
NHES (4)	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
NHES (5)	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
NHES (7)		✔	✔	✔	✔	✔		✔	✔	✔
CCSS - ELA - Literacy	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
CCSS - Math	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔

See next pages for full standards: NGSS, AL, FCSNS, National Health Education Standards, and Common Core ELA/Literacy and Math ▶

EDUCATION STANDARDS

Science and Our Food Supply: Using the Nutrition Facts Label to Make Healthy Choices aligns with the following current education standards:

NGSS – Next Generation Science Standards Arranged by Topics

Physical Science

Structure & Properties of Matter

- HS-PS1-1 Use the periodic table as a model to predict the relative properties of elements based on the pattern of electrons in the outermost energy level of atoms.
- HS-PS2-6 Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.

Chemical Reactions

- HS-PS1-2 Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties.

Life Science

Matter & Energy in Organisms and Ecosystems

- HS-LS1-6 Construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements to form amino acids and/or other large carbon-based molecules.
- HS-LS1-7 Use a model to illustrate that cellular respiration is a chemical process whereby the bonds of food molecules and oxygen molecules are broken and the bonds in new compounds are formed, resulting in a net transfer of energy.

Engineering Design

- HS-ETS1-2 Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.

National Agricultural Literacy Outcomes (AL)[1]

Food, Health & Lifestyle

- T3.9-12.a Accurately read labels on processed food to determine nutrient content.
- T3.9-12.b Compare the changes in nutritional needs of humans over their lifetimes.
- T3.9-12.e Explain food labeling terminology related to marketing and how it affects consumer choices (e.g., natural, free-range, certified organic, conventional, cage-free, zero trans-fat, sugar free, reduced calorie).
- T3.9-12.g Identify how various foods can contribute to a healthy diet.

Family & Consumer Sciences National Standards 3.0

9.0 Food Science, Dietetics, & Nutrition

- 9.3.1 Analyze nutrient requirements across the life span addressing the diversity of people, culture, and religions.
- 9.3.2 Analyze nutritional data.
- 9.3.6 Critique the selection of foods to promote a healthy lifestyle.
- 9.4.1 Analyze nutritional needs of individuals.
- 9.7.1 Explain the properties of elements, compounds, and mixtures in foods and food products.
- 9.7.4 Explain the impact of molecular structure of simple and complex carbohydrates on digestion, nutrition, and food preparation procedures.
- 9.7.5 Relate the composition of lipids and proteins to their functions in foods and their impact on food preparation and nutrition.

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[1] Spielmaker, D. M., & Leising, J. G. (2013). National agricultural literacy outcomes. Logan, UT: Utah State University, School of Applied Sciences & Technology. Retrieved from http://agclassroom.org/teacher/matrix

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14.0 Nutrition & Wellness

- 14.2.1 Evaluate the effect of nutrition on health, wellness, and performance.
- 14.2.2 Analyze the relationship of nutrition and wellness to individual and family health throughout the life span.
- 14.2.4 Analyze sources of food and nutrition information, including food labels, related to health and wellness.
- 14.3.1 Apply various dietary guidelines in planning to meet nutrition and wellness needs.
- 14.5.4 Analyze the effects of food science and technology on meeting nutritional needs.

National Health Education Standards

(1) Comprehend concepts related to health promotion and disease prevention to enhance health.

- 1.12.1 Predict how healthy behaviors can affect health status.

(2) Analyze the influence of family, peers, culture, media, technology, and other factors on health behaviors.

- 2.12.5 Evaluate the effect of media on personal and family health.

(3) Demonstrate the ability to access valid information, and products, and services to enhance health.

- 3.12.1 Evaluate the validity of health information, products, and services.
- 3.12.2 Use resources from home, school, and community that provide valid health information.

(4) Demonstrate the ability to use interpersonal communication skills to enhance health and avoid or reduce health risks.

- 4.12.1 Use skills for communicating effectively with family, peers, and others to enhance health.

(5) Demonstrate the ability to use decision-making skills to enhance health.

- 5.12.6 Defend the healthy choice when making decisions.

(7) Demonstrate the ability to practice health-enhancing behaviors and avoid or reduce health risks.

- 7.12.2 Demonstrate a variety of healthy practices and behaviors that will maintain or improve the health of self and others.

Common Core, ELA/Literacy

- W.9-10.1 Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
- W.9-10.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to the task, purpose, and audience.
- SL.9-10.1 Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grades 9-10 topics, texts, and issues*, building on others' ideas and expressing their own clearly and persuasively.
- SL.9-10.2 Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source.
- L.9-10.1 Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L.9-10.6 Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.
- RST.9-10. 3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.
- RST.9-10.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 9-10 texts and topics*.

Common Core, Math

- N-Q Reason quantitatively and use units to solve problems.

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