

How Sweet Is It?

WIN Kids Curriculum for 5th and 6th grade

Designed for classrooms, community youth groups, and other educational settings



Lesson Objectives

- Understand health concerns related to drinking sweetened beverages.
- Analyze and interpret research supporting health claims.
- Learn how to estimate volume and sugar content of common soft drink containers.
- Establish goals for improving health through beverage choices.



Wellness IN (WIN) the Rockies Principles

- Follow MyPyramid.
- Take pleasure in eating.



Health Standards

Content Area - Nutrition and Dietary Behavior

National Health Standards 1 (concepts), 6 (decision-making), and 7 (advocacy)

Wyoming Health Content and Performance Standards 1, 6 and 7

Montana Health Enhancement Content Standards 1 and 5

Idaho Grade 5 Health Performance Standards 941

Idaho Grade 6 Health Performance Standards 951

Note: Suggested standards can be met depending upon lesson components selected and assessed. Potential assessment tools are designated with a ✓.



Approximate Length

- 30 minutes



On average, every man, woman & child in America drinks 57 gallons of soft drinks per year.

-National Soft Drink Association

Materials and Preparation

Handouts:

Soft Drinks and Health (cut apart, 1 per group)

How Much Sugar? (1 per student)

WIN the Home: Adding It Up and Now What? (2 pages, 1 set per student)

Beverage containers of various sizes

(Paper cups from convenience stores and fast food restaurants. Suggested sizes are the following ounces: 6, 12, 16, 24, 48, and 64.)

One 5-pound bag of sugar for measuring. Optional, one 10-pound bag to show.

Sugar cubes (4 grams per cube)

Measuring cups

Nutrient Comparison Cards (if available)





Background for Educator

Sugar is a nutrient, a simple carbohydrate, that can provide energy. But many people consume too much sugar. It is important to understand the role of sugar in health, and to know the primary sources of sugar in the American diet. Statistics are piling up!

United States Department of Agriculture research:

- * Sugars have increased in the American diet 28 percent since 1982.
- * Children are more likely to have high intakes of added sugars and half of **6- to 11-year-olds** fall in the group with the **highest intakes**.
- * Foods and beverages with high amounts of added sugars contribute few nutrients while those with natural sugars (fruit & milk) contain vitamins, minerals and other nutrients.

Harvard School of Public Health: (2-year study, 458 ethnically diverse 11 to 12 year olds)

- * Children who drank soft drinks consumed almost 200 more calories per day than those who didn't drink soft drinks.

WIN the Rockies research preliminary findings: (2001, 389 5th graders in WY, MT and ID)

- * One-third of respondents reported drinking soft drinks at least 2 times per week.
- * Almost half reported drinking other sweetened beverages (such as Sunny Delight, Kool-Aid, Gatorade, sweetened teas) at least 2 times per week.

What are boys and girls are drinking these days?

- * In 1996, compared to 1977, 6 to 11 year old boys drank 24% less milk and girls drank 32% less milk.
- * From 1989 to 1995, children 2 to 17 increased soft drink intake about 40%.
- * Boys and girls 12 to 17 get about 11% of their calories from carbonated beverages, fruit-flavored and part-juice drinks, and sports drinks; or . . .
 - 15 teaspoons or 2 ounces of sugar each day,
 - about 44½ pounds per year.

Obesity is a complex issue, but sugar-sweetened beverages contribute to the rising incidence in children. While lifestyle changes for improved health involve more than just switching beverages, this one change can have a huge positive impact. Added sugars are also found in many foods including cookies, cakes, candies, and breakfast cereals.

Dental Health

Dental cavities result from the loss of hard tissue from the enamel and dentin of teeth. When carbohydrates such as sugars are on the teeth, oral bacteria use them for fuel and produce acid that can dissolve the enamel. While fluoride (primarily from water and toothpaste), brushing and flossing can help prevent cavities, research suggests teeth that are exposed repeatedly to acidic liquids and sugars are at higher risk for enamel damage. Both regular and diet soft drinks are acidic beverages, and regular soft drinks also expose teeth to significant amounts of sugar. Amount and frequency of consumption influence the risk of cavities.



Lesson Script

Sweetened Beverages Overview

1. What are some common beverages kids drink today? (*Write on board and briefly discuss the nutrients these provide.*)

soft drinks = carbohydrates

diet soft drinks or artificially sweetened drinks = no nutrients

water = an essential nutrient necessary for life

fruit and vegetable juices (only 100% juice can be called “juice”; otherwise they are fruit beverages, ades or drinks) = carbohydrates, vitamins, minerals, and phytochemicals (*Remind students that while juices are more nutrient dense than fruit-flavored beverages, they are easy to over-consume and should be limited to no more than one or two servings per day.*)

flavored or sweetened drinks (Kool-Aid, sports drinks, flavored teas, Sunny Delight, flavored water) = carbohydrates, some add specific nutrients

milk = carbohydrates, vitamins, minerals, protein

If you have nutrient comparison cards, show them. They include bar graphs of nutrients so students can see nutrient differences.

2. Statistics or data are bits of information gathered through research. They can provide information for making informed decisions. Here are two examples (*write on board*):

On average, every man, woman and child in America drinks over 57 gallons of soft drinks per year. - National Soft Drink Association, 2002

In 1997, Americans consumed an average of 53 gallons of carbonated soft drinks. - Economic Research Service, US Department of Agriculture

(Facilitate a brief discussion about how to interpret research data using this as an example.) When you see a statistic, ask the following questions:

- * Is the source credible? In other words, can the source be trusted to give balanced information? (*The Soft Drink Association is an unusual source for this kind of information since they are in the business of making soft drinks. The USDA reports consumption data on all kinds of foods and beverages.*)
- * What does the statistic mean? (*Both refer to average consumption. We know some people consume more and some consume less, or none.*)
- * How was the information gathered? (*For these examples, sales data was used.*)
- * Is there another source with similar findings? (*These examples vary slightly. This is due to the reporting year and variations in how data is interpreted. Yet, they both show a high average consumption of soft drinks.*)
- * Is it believable? (*Does it sound too good – or too bad – to be true?*)

4. Soft drinks and other sweetened beverages are the focus for this lesson. Why do you think drinking soft drinks and other sweetened beverages is a health concern? (*Brainstorm ideas and add these below if they are not mentioned.*)

- * they provide calories from sugar with few or no other nutrients
- * they are often substituted for more healthful beverages or food
- * they are easy to over-consume
- * they can create a desire for sweet-flavored foods and beverages
- * they are a contributing factor to increasing obesity in the U.S.
- * they replace other fluids in our day, such as water and milk
- * they contain sugar and acids that contribute to dental decay
- * many contain caffeine, which is a stimulant

5. Divide into six groups. Each group will take a statement about a health concern of over-consumption of soft drinks. (*Distribute one card per group from the **Soft Drinks and Health** handout.*) Within your group, discuss the statistics you have been given. Create a skit or presentation to share with the class explaining the statement and the data you are provided. Be creative! ✓

How Much Sugar is in There?

1. Sugar in soft drinks can lead to health problems. But just how much sugar is in soft drinks? First, it helps to understand how much liquid a container holds. Divide into groups. (*Distribute 4 to 6 different sized beverage containers, one per group. Suggested sizes are the following ounces: 6, 12, 16, 24, 48 and 64.*)

2. How many liquid ounces would you guess are in your container? (*Distribute handout **How Much Sugar?**, measuring cups and sugar cubes.*)

3. Work as a group and use the handout to find what size container you have. The amount of sugar in soft drinks for the chart is based on an average of 40 grams of sugar for a 12-ounce can. Count the sugar cubes and measure (in cups) the amount of sugar you would have if your container was full of a soft drink. Complete the blanks on the handout. ✓

4. Report to the class how many sugar cubes are in your container if it is full of a soft drink. Stand up and sit down the number of times that match the number of sugar cubes. The class counts along. (*Start with the smallest cup. Each successively larger cup adds to that first amount. For example: group one has 6 sugar cubes, so they stand up 6 times. The next group has 12 so they stand up 6 times and the counting goes from 7 to 12.*)

5. Report to the class the total pounds of sugar you would get if you drank one of your containers full of a soft drink every day for a year. (*Show and pass around the 10-pound bag as a reference.*)

6. Some people substitute diet or sugar-free beverages to reduce sugar. These are not healthful beverages. Diet soft drinks often contain caffeine, contain acids that may contribute to dental erosion, help us maintain a desire for sweet beverages and food, and can make us feel full so we don't drink enough milk and water.



WIN the Home: How much do we drink?

Distribute the **WIN the Home: Adding It Up** and **Now What** handouts. Review the different types of sweetened beverages (soft drinks, flavored teas, Kool-Aid, juice-drinks like Sunny Delight that are not 100% juice, flavored waters, sports drinks). Explain how to read the label on beverages to determine serving size and grams of sugar. Ask students to partner with a family member. They both will keep track of sweetened beverages they consume for a week. Have students complete the worksheet and prepare a written summary or report on their findings. ✓

Please note: pilot testing of lessons has determined that WIN the Home activities are most successful when students have time over a weekend to complete them, when a follow-up is conducted in class, and when students receive credit for completion.



WIN the Community: Vending Machines

Encourage students to explore where they see beverage vending machines around town. Create a simple map and note locations of vending machines. Include information on the choices in the machines. Do they offer water, juice, milk or other beverages besides soft drinks?

➤ **LANGUAGE Option:** Write letters to places (including schools) that have vending machines. ✓ If they offer only soft drinks, ask them to consider offering other choices such as water or milk. Ask if they would consider removing soft drinks. If they offer many choices, write and thank them for making those available.



Additional Ideas

➤ **Beverage Scavenger Hunt** – Review how to read a food label to determine grams of sugar in a container. Some containers seem like single servings, but they may actually be 2 or more servings. In these cases, the grams of sugar must be multiplied by the number of servings to determine the sugar in the container. Ask students to look at labels on various beverage containers and write down the total number of ounces and grams of sugar. If possible, bring the container to class. Create a display showing beverages with the most to least amount of sugar. Incorporate the nutrient comparison concept by highlighting beverages with less sugar and more nutrients.



Sources and Materials

Jacobson, Michael. "Liquid Candy: How Soft Drinks are Harming Americans' Health." *Center for Science in the Public Interest*. Downloaded 4 Nov. 2002
<www.cspinet.org/sodapop/liquid_candy.htm>.

Ludwig, D.S., et al. "Relation Between Consumption of Sugar-Sweetened Drinks and Childhood Obesity: A Perspective, Observational Analysis." *The Lancet* 357 (17 Feb. 2001): 505-508.

McBride, Judy. "Added Sugar Intake on the Rise." *Agricultural Research* June 2000.

Schuster, Ellen. "Sugary Beverages On the Rise." *NutriFocus* 4.52. Oregon State University Extension SP 25-162. Mar. 2000.

University of Iowa College of Dentistry. *Does Soda Pop Cause Cavities?* Educational Brochure. Iowa City, Iowa 1998.

To obtain nutrient **Comparison Cards**, contact National Dairy Council, 800-274-MILK or <www.dairycouncil.com>.

WIN the Rockies wishes to thank all of the educators who reviewed this lesson and offered suggestions. Reviewers included: Sylvia Moore, Joan Gunnerson, Katie Nelson, Phyllis Dennee, Suzy Pelican, Michael Liebman, Rhonda Andersen, Krystal Damori, and Betty Holmes.

You may reproduce WIN Kids for educational purposes but not for sale purposes. Please credit as follows: *WIN Kids Lesson*, Wellness IN the Rockies, www.uwyo.edu/wintherockies.

WIN Kids Lesson ♦ Wellness IN the Rockies

www.uwyo.edu/wintherockies

Phone: 307-766-4908 ♦ Fax: 307-766-2492

Dept 4238, 1000 E University Ave ♦ University of Wyoming ♦ Laramie, WY 82071-4238

Developed by Mary Kay Wardlaw, Project Education Specialist

WIN the Rockies is a community-based research, development and education project to improve health of residents in Idaho, Montana and Wyoming. Supported by award 0004499 through IFAFS (Initiative for Future Agriculture and Food Systems) Competitive Grants Program/USDA.

The University of Wyoming, Montana State University, the University of Idaho and the United States Department of Agriculture cooperating. These universities are equal opportunity affirmative action institutions.

1205

