How Sweet Is It?
WIN Kids Curriculum for 5<sup>th</sup> and 6<sup>th</sup> grade
Designed for classrooms, community youth groups, and other educational settings

**Lesson Objectives**
- Understand health concerns related to drinking sweetened beverages.
- 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 USDA Dietary Guidance.
- Take pleasure in eating.

**Health Standards** (based on 2005 information)

**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

**Materials and Preparation**

Handouts:
- 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)

Sodas and fruit drinks are the biggest single source of calories and added sugars in teen diets.
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:
* Children ages 2-19 years in 2003-2006 drank roughly equal amounts of milk and soda (about 9 ounces per day). In the late 1970’s kids drank three times more milk than soda, about 15 ounces of milk and 5 ounces of soda.
* Trends in consumption of sugar-sweetened beverages correlate with the prevalence of weight gain in children.
* 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: (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.

National Health and Examination Survey (NHANES) 1999-2004:
* Children ages 2 to 19 years on average consumed 24.9 teaspoons of added sugars each day. Approximately 12 teaspoons per day were from sweetened sodas and fruit drinks (less than 100% juice). That equals 45.6 pounds of sugar per year from soda and fruit drinks.

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. 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

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 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


To obtain “See the Difference Nutrient Bar Graph Cards,” contact Western Dairy Association at 800-274-6455 or <westerndairyassociation.org/store>.