



KEEP GROWING DETROIT THINK BEFORE YOU DRINK

LESSON:

Think Before You Drink!

GRADE LEVEL: K-6

OBJECTIVES:

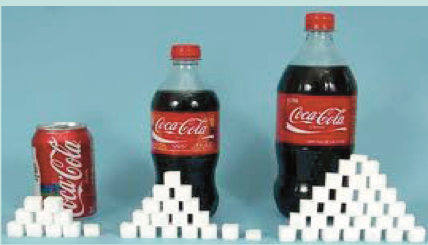
- Learn about the dangers of consuming too much added sugar
- Taste fresh water!
- Prepare and taste garden-fresh natural juice
- Plant garden crops for summer juicing

KEYWORDS:

- Natural
- Added Sugars
- Unhealthy
- Artificial
- Refined
- Nutrient

SKILLS:

- Identifying parts of plants
- Making healthy food choices
- Safely handling food



OVERVIEW:

Recent nutrition research is confirming what health advocates have been asserting for years- the high levels of added sugar to food and drink products are a major factor contributing to an emerging health crisis around the world. Excessive consumption of added sugar has been linked to causing dental cavities, constipation, diabetes and hypoglycemia, kidney stones and gallstones, hyperactivity, osteoporosis, cardiovascular disease, weakened immune system, and even certain forms of cancer. Young people are particularly affected by the high cost of high sugar content, as rising Type II diabetes rates have reached epidemic proportions. In an age where one out of every three young person is overweight (and 15% are obese), learning about sugar consumption is a topic we can't ignore.

In this lesson we will learn about the different types of sugars and sweeteners (natural, added, and artificial), their varying dangers to our health, and measure the sugar content of popular drinks. The average American consumes over 175 pounds of sugar per year- that's over 1/2 pound every single day! Students will analyze the sugar content of popular drinks and learn how the changes in drink portion sizes is contributing to overconsumption of added sugars. Older students will learn about some of the dangers associated with artificial sweeteners and try to find them on nutritional labels of various foods and drinks.

Once the students understand the dangers of a diet high in added sugars, we will prepare and sample a delicious, fresh, and nutrition fruit and vegetable juice sweetened only with natural sugars and packed with nourishing nutrients and plant-tastic phytochemicals. Finally, students will assist in preparing and planting rows of vegetables ideals that can be used for juicing later in the season.

QUESTIONS TO CONSIDER:

- What is your favorite thing to drink?
- What are some of your favorite foods? Which ones do you think are sweet?
- Do you know anyone in your family who is affected by diabetes? Do they have to watch what they eat?
- Have you ever felt super energized after drinking a soda? What about another drink? What about feeling jittery?

PART I: THE HIGH COST OF HIGH SUGAR

PROCEDURE (K-2) :

1. Ask the student to list some food that they know are HEALTHY. Then, ask them to think of any foods they can think of that are UNHEALTHY.
2. Explain that NATURAL plant foods are very healthy for us, but many things we eat and drinks have added ingredients that can make us sick. ADDED SUGAR is one of the most dangerous ingredients added to food and drink items. A diet with too much ADDED SUGAR can give us very bad and deadly diseases.
3. The average person in the US drinks an average of 19 ounces of soda/day (1.6 cans); this equals 240 empty calories per day and would cause a gain of 25 pounds per year if drunk in addition to the food we need to live and be healthy. Invite one volunteer up to try to lift a 25lb. weight to see how much weight that really is!
4. Explain to the students that many drinks and sodas have lots of ADDED SUGARS. Often, the ADDED SUGARS in foods and drinks hides under different names- you have to look hard to find them! We make sure to look on the nutrition labels on the back to see the listed ingredients.

MATERIALS:

PART 1 (K-2):

- 1 20oz empty bottle of Pepsi
- 1 Empty bottle of 100% orange juice
- 1 Empty bottle of artificial fruit juice
- 1 Empty bottle of Gatorade or other sports drink
- 1 Empty bottle of water
- 1 Lb. of white sugar
- 1 Teaspoon for measuring
- 1 Funnel
- 25 Lb. weight or equivalent sand bag

PART 1 (3-6):

- 1 20oz empty bottle of Pepsi
- 1 Empty bottle of 100% orange juice
- 1 Empty bottle of artificial fruit juice
- 1 Empty bottle of Gatorade or other sports drink
- 1 Empty bottle of water
- 1 Lb. of white sugar
- 1 Teaspoon for measuring
- 1 Funnel
- 30 Bottles or packages of food and drink items with nutritional labels
- List of artificial sweeteners
- 25 Lb. weight or equivalent sand bag

PART 2 (ALL):

- 5 Lb. Organic carrots
- 5 Lb. Organic apples
- 1 large organic ginger root
- Sampling cups
- Juicer
- Generator (if doing activity outside)
- Bowl for compost
- Large pitcher

PART 3 (ALL):

- Prepped beds for planting
- Packets of carrot and beet seeds
- String and stakes for marking out rows
- Watering cans

PROCEDURE (K-2 CONTINUED):

5. Set up the table with a range of natural and artificial drinks (including at least soda, a sports drink, a natural fruit juice, and water) beforehand. Ask the students to guess which drink has the most and the least sugar. Explain that we are going to measure the amount of ADDED SUGAR that is in the drinks on the table.

6. We will measure in teaspoons- one teaspoon equals four grams of sugar. To find the number of teaspoons in a drink, divide the total grams of sugar by 4. Call up one student volunteer to fill each empty bottle with the actual amount of sugar contained in that drink. Have the classes count as the volunteer adds the sugar to the empty bottle.

7. Compare the amount of ADDED SUGAR in each bottle. Note that the bottle of water will have NO sugar. Ask them which drink they think is the healthiest.

PROCEDURE (3-6):

1. Tell the students that while we usually talk about HEALTHY foods, today we're going to learn about foods they can think of that are UNHEALTHY.

2. Explain that NATURAL plant foods are very healthy for us, but many things we eat and drinks have added ingredients that can make us sick. ADDED SUGAR is one of the dangerous ingredients added to food and drink items. A diet with too much ADDED SUGAR has been linked to causing dental cavities, constipation, diabetes and hypoglycemia, kidney stones and gallstones, hyperactivity, osteoporosis, cardiovascular disease, weakened immune system, and even certain forms of cancer.

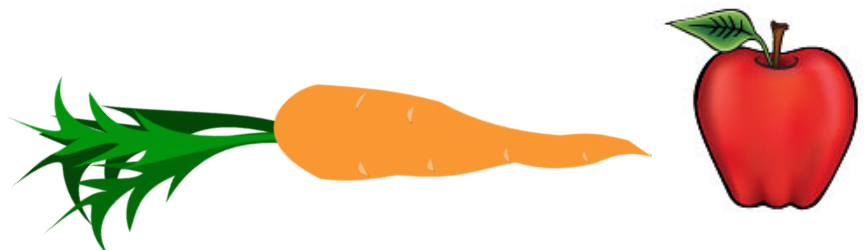
3. The average person in the US drinks an average of 19 ounces of soda/day (1.6 cans); this equals 240 empty calories/day and would cause a gain of 25 pounds per year if drunk in addition to needed food. Invite one volunteer up to try to lift a 25lb. weight (carefully, so they don't get hurt) to see how much weight that really is!

4. Explain to the students the sugars in many drinks and sodas are ARTIFICIAL or REFINED. Ask them to define what ARTIFICIAL means. Often, the ADDED SUGARS in foods and drinks hides under different names- you have to look hard to find them! Show them the big list of ingredients that count as ADDED SUGARS. Hand out one food or drink item for each student, and have the students look for these ingredients on their nutrition label.

5. When they are done, set up the table with a range of natural and artificial drinks (including at least soda, a sports drink, a natural fruit juice, and water) beforehand. Ask the students to guess which drink has the most and the least sugar. Explain that we are going to measure the amount of ADDED SUGAR that is in the drinks on the table.

6. We will measure in teaspoons- one teaspoon equals four grams of sugar. To find the number of teaspoons in a drink, divide the total grams of sugar by 4. Call up one student volunteer to fill each empty bottle with the actual amount of sugar contained in that drink. Have the classes calculate the number of teaspoons needed, and to count as the volunteer adds the sugar to the empty bottle.

7. Compare the amount of ADDED SUGAR in each bottle. Note that the bottle of water will have NO sugar. Ask them which drink they think is the healthiest.



PART II: THE JUICE IS LOOSE!

PROCEDURE (ALL):

1. Now, explain that there are lots of healthy drinks we can have instead of soda or sports drinks. Remind the students that the best (and free!) drink they can find anywhere is water!
2. Show the students the juicer and ask if anyone has ever seen or used one before. Explain that we will be juice fresh fruits and vegetables. Not only do we get a delicious drink sweetened by NATURAL sugars, but freshly-made fruit or vegetable juice is jam-packed with vitamins, minerals, and other nutrients. Today we'll be making carrot-apple-ginger juice. Ask the students if we can grow these ingredients in the garden. What other vegetables could we juice?
3. Have the students assist with putting prepared vegetables in the juicer. Make sure not to overload it, and clean out the pulp after every class.
4. Serve small samples for the students to taste.



Keep Growing Detroit is cultivating a food sovereign city where the majority of fruits and vegetables consumed are grown by Detroiters within the city's limits. For more information visit keepgrowingdetroit.org or contact Keep Growing Detroit at (313) 757-2635 or info@keepgrowingdetroit.org.