



High School Lesson Plan

Choosing Healthy Beverages

Rethink Your Drink

Grades 9-12

I. Lesson Objectives:

- A. Students will explain the importance of water and hydration.
- B. Students will identify healthy beverage choices.
- C. Students will demonstrate how to read and apply the information on the Nutrition Facts label.
- D. Students will calculate and measure the amount of sugar in various beverage containers.

II. Behavior Outcomes:

- A. Drink water instead of sugary beverages.
- B. Choose beverage and foods to moderate intake of sugars.

III. Pennsylvania Educational Standards:

- A. 2.5 Mathematical Problem Solving and Communication
- B. 10.1 Concepts of Health
- C. 10.2 Healthful Living
- D. 11.3 Food Science and Nutrition

IV. Materials

- A. Laptop/Projector with Power Point Presentation
- B. Handouts: *“Rethink Your Drink”* and *“How much sugar is in my drink”* worksheets
- C. Optional Handouts: *“Sugar Shockers”* and/or *“Keeping Hydrated”* handouts from Learning Zone Express, or other appropriate beverages handout
- D. Additional Activities: *“What’s in your beverage”*
- E. Other materials: measuring teaspoons, clear plastic cups, container with sugar, empty beverage containers with nutrition labels, including a 20 oz. bottle of soda, 100% juice, low-fat/fat free milk and various other beverages with added sugar
- F. Reinforcement that conveys the appropriate nutrition message
- G. Hand wipes
- H. Food tasting and any necessary supplies
- I. Ten Tips Sheet: *“Make Better Beverage Choices”*

V. Procedure: *Text in italics are instructions for the presenter, non-italicized text is the suggested script.*

A. Introductory

1. Lesson Introduction
 - a. *Introduce yourself and the nutrition education program/organization presenting the lesson.*
 - b. *Review previous lesson.*
 - c. *Briefly introduce lesson topic.*
2. Icebreaker
 - a. *Ask students to list their favorite beverage choices. Responses may be written on the board if able. Discuss which beverages they think are healthy choices and why they think they are healthy choices. Tell the students that we will get back to those choices after discussing this topic further.*

B. Developmental

1. Slide 1: Rethink Your Drink
 - a. Today's lesson will cover the importance of proper hydration and how to choose healthy beverages.
 - b. *Distribute "Rethink Your Drink" worksheet for students to fill in as you discuss the lesson topic and any other additional handouts, if using.*
2. Slide 2: Project Sponsors
 - a. Drexel University's EAT.RIGHT.NOW. program is the official Pennsylvania Nutrition Education TRACKS Program of the School District of Philadelphia.
 - b. The program is funded by the USDA Supplemental Nutrition Assistance Program Education (SNAP-Ed) through the Pennsylvania Department of Human Services (DHS).
3. Slide 3: Why are water and hydration important?
 - a. *Ask students why they think water and hydration are important. Review and discuss answers.*
 - b. The term "hydration" means to provide the body with adequate and sufficient fluids to function appropriately. In fact, the body cannot survive more than 2-3 days without fluids.
 - c. The body is made up of 60-70% water.
 - d. Water is vital for many basic functions of the body including disposing of waste through urine and sweat, cushioning and protecting the joints, and assisting in body temperature regulation.
4. Slide 4: Dehydration
 - a. *Ask students if they can describe what dehydration means? Review and discuss answers.*
 - b. Dehydration is a loss of fluids. It can happen to anyone, at any time regardless of physical activity.

- c. Every day, fluids are lost through our urine, breathing, and sweat making it difficult to detect that fluid was lost. Drinking fluids throughout the day will help ward off thirst and maintain hydration.
 - d. *Ask students:* What happens to your body when you're dehydrated? *Review and discuss answers.*
 - e. Be aware of signs of dehydration. Thirst is a key sign of mild dehydration, but don't rely on thirst alone! Urine color is another indicator. Urine should be a pale yellow versus dark yellow to ensure adequate hydration status. Other signs and symptoms can include headache, fatigue, dizziness, lack of concentration, and difficulty breathing.
5. Slide 5: Fluid Needs
- a. The Dietary Reference Intakes (DRI's) for daily total water intake are:
 - i. 3.3 L (112 ounces) for males 14-18 years old
 - ii. 2.3 L (78 ounces) for females 14-18 years old
 - b. This accounts for all water from beverages and food.
 - i. On average, 80% of fluid needs are met through water and beverages, and the other 20% from foods
6. Slide 6: When do we need more?
- a. There are times when we may need to drink more water to prevent dehydration.
 - b. *Ask students when they think it is important to drink more water.* Heat exposure and prolonged physical activity will increase water losses and may raise daily fluid needs.
 - c. It is important to consume fluids before, during, and after activity. Higher intensity or longer duration physical activity can cause more fluid loss.
 - d. Even mild dehydration can negatively affect performance so it is important to drink water to stay hydrated.
7. Slide 7: Drink More Water
- a. Drinking water is the best way to maintain hydration.
 - b. Some people are not as good at recognizing thirst, need reminders throughout the day, or have not acquired a taste for water.
 - c. Ways you can increase your water intake are by having a glass of water at each meal, using a fun colored straw to encourage intake, adding a lemon or lime for flavor, adding bits of fruit, diluting 100% fruit juice with water, and carrying a water bottle with you at all times.
 - d. *Ask students if anyone can think of other tips to increase water consumption?*
 - e. Tap or bottled? Some people opt for bottled water instead of tap water, but the choice is ultimately yours. Bottled water usually does not contain fluoride (unless it has been added by the manufacturer, which is not common). Tap water may provide fluoride, a mineral that helps reduce the formation of cavities. (*In the city of Philadelphia, tap water is fluoridated.*)

8. Slide 8: Where else can we get water?
 - a. Fluid intake does not just come from drinking water. Fluid needs are met from a variety of beverages, including drinks such as 100% juice, milk, decaffeinated or herbal tea, and sports drink and through water contained in foods, especially fruits and vegetables.
 - b. Foods with high water content also tend to provide a significant amount of fiber, vitamins and/or minerals.
 - c. *Explain that the picture displays the water content of various fruits and vegetables. Also refer to "Keeping Hydrated" handout if using.*

9. Slide 9: Beverage Options
 - a. *Refer back to the beverages that students listed in the beginning of lesson and review the beverage options on the slide.*
 - b. There are many beverage options available to us, but how do we know what to choose? We know that water is the best drink to keep our bodies hydrated, but what about the rest? How do we decide what is a healthy choice? We will take a look at this over the next few slides.

10. Slide 10: Identifying Healthy Drinks
 - a. *Ask students what they think makes a beverage healthy? Review and discuss answers.*
 - b. *Use this slide to highlight key points of label reading with students.*
 - i. The Nutrition Facts label highlights important nutrients found in a drink. You can use the nutrition facts label to help you decide if your drink is a healthy choice.
 - ii. Serving Size/Servings per Container- Remember that the label is based on one serving, so you should start by checking the serving size and servings per container. Many beverage containers might contain more than one serving, so remember that you have to multiply everything on the label if you drink more than one serving.
 - iii. Calories- Next check the calories. The calorie content of beverages varies widely. We want to choose beverages with less empty calories and more nutrients. We will figure out how to tell this in the next few slides.
 - iv. Fat –We want to limit our intake of saturated fat to less than 10% of total calories. Generally beverages that contain fat are milk or dairy based drinks. When you choose milk or milk alternatives, select low-fat or fat-free milk or fortified soymilk.

11. Slide 11: Beverage Options- Fat
 - a. *Ask students which beverages shown on the slide could contain fat.*
 - b. *Point out that any of the beverages that are milk or contain milk could contain fat depending on the type of milk used.*
 - c. *Remind students to choose low-fat or fat-free milk and milk alternatives.*

12. Slide 12: Identifying Healthy Drinks
 - a. Many beverages contain sugar, but we need to be mindful of the source of the sugar.
 - b. Some foods naturally contain sugar. For example, fruits, vegetables, and milk all contain natural sugars. These foods also provide essential nutrients along with the naturally occurring sugar.
 - c. Added sugars, on the other hand, contribute calories but no essential nutrients. We want to limit our intake of added sugars to less than 10% of daily calories. For an average 2000 calorie diet, that would be 200 calories, or 12 teaspoons of sugar.

13. Slide 13: Beverage Options- Added Sugars
 - a. *Ask students which beverages shown on the slide contain added sugars.*
 - b. *Point out that some drinks may contain a combination of natural and added sugars, for example flavored milk or a smoothie.*

14. Slide 14: Identifying Healthy Drinks
 - a. The nutrition Facts label highlights certain vitamins and minerals that are important in the diet.
 - b. “Empty calories” refer to foods or drinks that have a lot of calories, but little or no essential nutrients.
 - c. If a food or drink contains several important nutrients and is lower in calories, it is a “nutrient dense” choice.

15. Slide 15: Beverage Options- Nutrient Dense
 - a. *Ask students which beverages shown on the slide are nutrient-dense.*
 - b. *Review that 100% fruit or vegetable juice and low-fat or fat free milk are nutrient-dense beverage choices. A smoothie could be nutrient-dense if made with real fruits and/or vegetables and low-fat or fat free milk or yogurt.*
 - c. *If students ask about energy drinks, explain that: Energy drinks can be fortified with a lot of nutrients. Usually the amount of vitamins and minerals is greater than the amount a person needs in a day. Energy drinks also have added sugars and often have caffeine, which should be limited in the diet. Moderation in consuming energy drinks is suggested.*
 - d. *Remind students that while water contains no additional vitamins or minerals, it is a nutrient itself and contains zero calories, so it is always a healthy choice.*

16. Slide 16: Portion distortion
 - a. *Discuss the difference between serving size and portion size and how portion size affects the nutritional value of a beverage.*
 - b. Serving size is a standard amount of a food or drink that is used as the basis for the information on the label.

- c. Portion size is how much a person eats or drinks at a one time. A person's portion size might be the same as the serving size, or it might be larger or smaller.
 - d. Portion sizes of many foods and drinks have increased over time. While smaller sized sodas were once more common, now you will find 20 ounces, or even larger, to be a more common portion size.
 - e. The larger the portion size, the more calories that will be consumed. When more calories are consumed than the body can use, weight gain results.
 - f. It is especially important to be aware of portion size for beverages with empty calories, but it is still important for all beverages that you consume. Even a nutrient-dense beverage with only natural sugars, like 100% juice, can contribute excess calories if too large a portion is consumed.
 - g. *Acknowledge that sometimes consuming more than one serving or a larger portion of something is not necessarily a problem – it depends on the rest of the overall diet and the nutrients that are in that food or drink.*
17. Slide 17: How much sugar?
- a. *Ask students: What is the main ingredient in soda? Answer: Sugar.*
 - b. Sugar can be found in the ingredients list in various forms: i.e. high-fructose corn syrup, sucrose syrup, etc. Let's take a look at a bottle of soda to help us learn how to read and use the information on the Nutrition Facts label.
 - c. *Review the pictured Nutrition Facts label (for a 20 oz. soda) with students, identifying the serving size, calories per serving, and sugar content.*
 - d. *Have a student-volunteer (or the entire class) help to determine how many teaspoons of sugar are in the 20oz. bottle of soda.*
 - e. *Go through each step:*
 - i. *Determine the number of grams of sugar in the entire container:* There are 27 grams of sugar in one serving and there are 2.5 servings in the container. Multiply these numbers to determine the total sugar (in grams).
(a) $27\text{g} \times 2.5\text{servings} = 67.5\text{g}$
 - ii. *Determine the number of teaspoons of sugar in the entire container:* There are 4 grams of sugar in 1 teaspoon of sugar. Divide the total sugar (in grams) by 4.
(a) $67.5 \div 4 = 16.9$ teaspoons of sugar
 - iii. *Have volunteer measure 17 teaspoons of sugar into a plastic cup for a visual display of the amount of sugar in the bottle of soda.*
18. Slide 18: Activity – “How much sugar is in my drink” worksheet
- a. *Divide the class into small groups and allow each group to select an empty drink bottle. Provide each group with copy of the “How much sugar is in my drink” worksheet.*
 - b. *The objective of this activity is to determine how many teaspoons of sugar are in the drink by following the same calculation steps that were just used for the previous activity. Assist students as necessary.*

- c. *As students complete their worksheets, they may measure the calculated amount of sugar into an empty plastic cup. Have students compare results for the various drinks, either through discussion or by drawing a table on the board. Out of the drinks, which had the least and most amounts of added sugar?*

Additional activity – “What’s in your beverage” worksheet

- a. *Divide the class into small groups (or use the same groups if already completed prior activity) and allow each group to select one sugar sweetened drink bottle and one bottle of either low-fat milk, flavored milk, or 100% juice.*
 - b. The object of this activity is to compare a healthy beverage choice to a sugar sweetened beverage choice by reading the information on the nutrition facts label.
 - c. *The groups will record the information for their products in the chart provided on the worksheet.*
 - d. *Review the worksheet with the students by having them share their answers with the class.*
19. Slide 19: Rethink your drink
- a. Staying hydrated every day is important to everyone at all times
 - b. Dehydration can negatively affect many aspects of your health.
 - c. Think about portion size and remember that larger portions will have more calories. Consuming excess calories can lead to weight gain and other health issues.
 - d. Drinks with added sugars can be incorporated into a healthy diet sometimes. Overall, try to choose water, 100% fruit juice or low-fat milk instead of sugary drinks.
 - e. When choosing beverages, remember that both short-term and long-term health are affected so ask yourself who will this impact me in the future?

20. Slide 20: Questions

B. Conclusion

1. *Review take-away messages from lesson.*
 - a. *Review the importance of water and hydration.*
 - b. *Have students give examples of beverage and food sources high in water and low in sugar.*
 - c. *Ask students how they can use the information on the Nutrition Facts label to make healthier beverage choices.*
 - d. *Go back to the list of favorite beverages the students gave at the beginning of class. Review which are the healthiest choices and why.*
2. *Distribute hand wipes.*
3. *Provide each student with a food tasting and encourage him or her to make small changes in his or her diet now. Explain why the food is a healthy option.*

4. *Distribute the reinforcement, read the message and/or explain the reason why they are receiving the reinforcement.*
5. *Distribute Ten Tips Fact Sheet (or other appropriate fact sheet) and encourage students to share it with their families.*
6. *Thank the students for their participation and answer any question they may have.*



This material was funded by USDA's Supplemental Nutrition Assistance Program (SNAP) through the PA Department of Human Services (DHS). This institution is an equal opportunity provider.



Rethink Your Drink

Fill in the best answer as the instructor goes through the slides.

1. ____ to ____% of your total body weight is made up of water.

2. List 3 important things that water does for the body:

3. List 3 signs and symptoms of dehydration.

4. _____ is the best drink to stay hydrated.

5. Even mild dehydration can _____ affect performance.

6. What are other sources of water?

7. Choose _____ - _____ or _____ - _____ milk and milk alternatives.

8. _____ is an example of a drink with added sugar.

9. _____ is an example of a drink that is nutrient-dense.

10. As _____ increases, _____ increase too.

11. How many teaspoons of sugar are in a 20 oz. soda?

_____ g x _____ servings = _____ grams sugar in bottle

_____ g ÷ 4 = _____ teaspoons sugar in bottle



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Rethink Your Drink- ANSWER KEY

Fill in the best answer as the instructor goes through the slides.

1. **60** to **70%** of your total body weight is made up of water.
2. List 3 important things that water does for the body:
 - a. **Helps body dispose of waste**
 - b. **Protects organs and joints**
 - c. **Maintains body temperature regulation**
3. List 3 signs and symptoms of dehydration.
 - a. **Thirst**
 - b. **Urine color**
 - c. **Headache**
 - d. **Fatigue**
 - e. **Dizziness**
 - f. **Lack of coordination**
 - g. **Difficulty breathing**
4. **Water** is the best drink to stay hydrated.
5. Even mild dehydration can **negatively** affect performance.
6. What are other sources of water?
 - a. **Milk, 100% juice, teas, sparkling water, seltzer water, diet sodas**
 - b. **Broth-based soups**
 - c. **Fresh, raw fruits and vegetables**
7. Choose **low-fat** or **fat-free** milk and milk alternatives.
8. **Soda, sweet tea, lemonade, fruit punch, energy drinks, sports drink** is an example of a drink with added sugar.
9. **Milk, 100% fruit or vegetable juice** is an example of a drink that is nutrient-dense.
10. As **portion size** increases, **calories** increase too.
11. How many teaspoons of sugar are in a 20 oz. soda?
27 g x **2.5** servings = **67.5** grams sugar in bottle
67.5 g ÷ 4 = **16.875** teaspoons sugar in bottle



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How much sugar is in my drink?

My group's drink is _____

Step 1:

# of servings		Grams of sugar in one serving		Total amount of sugar
	X		=	

Step 2:

Total amount of sugar		# of grams of sugar in 1 teaspoon		Total # of teaspoons of sugar
	÷		=	



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How much sugar is in my drink?

My group's drink is _____

Step 1:

# of servings		Grams of sugar in one serving		Total amount of sugar
	X		=	

Step 2:

Total amount of sugar		# of grams of sugar in 1 teaspoon		Total # of teaspoons of sugar
	÷		=	



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What's in your beverage?

PART 1: What does it all mean?

Choose one beverage, **except milk, flavored milk, or 100% juice**. Then choose a second beverage that is either milk, flavored milk, or 100% juice. Record the following information or values for your products in the chart provided.

Record the following for Product #1 and #2	Product #1	Product #2 (milk, flavored milk, or 100% juice)
What is the product's name?		
What is the serving size according to the label?		
How many servings are in the entire container or package?		
How many total calories are there in one serving?		
How many calories would you consume if you drank the whole container?		
How many grams of sugar are in one serving of the beverage?		
How many teaspoons of sugar are in one serving of the beverage? (Hint: 1 teaspoon = 4 grams of sugar)		
How many grams of sugar would you consume if you drank the entire container?		
How many teaspoons of sugar would you consume if you drank the entire container? (Hint: 1 teaspoon = 4 grams of sugar)		
What is the 1st ingredient listed?		
What is the 2nd ingredient listed?		
What vitamins and/ or minerals are listed on the labels?		
List 1-2 ingredients which are a mystery to you.		



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PART 2

Answer the following questions.

1. Looking at the nutrition labels, ingredients lists, and number of teaspoons of sugar, which product do you think is a healthier choice, product #1 or product # 2? Why?

2. What can you do to make healthier choices when selecting what you want to drink?



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