Drinks from the Garden:

A Collaborative Nutrition Education, Fitness Activity and Garden Education Experience

K-5 Lessons and Activities
Oakland Unified School District
April 17, 2013

Healthy Living...for life!

Nutrition Services • Alameda County Public Health Department

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Lesson Overviews and Handouts
Grades K-3
# Sugary Drinks

**Grades K-3**

## Objectives/Materials/Preparation

<table>
<thead>
<tr>
<th>Activity</th>
<th>Objectives</th>
<th>Materials</th>
<th>Preparation</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-Chart (5 min.)</td>
<td>Students will classify drinks that have natural sugars and those that have added sugars.</td>
<td>1. Large piece of butcher paper divided in half, vertically – with no titles, initially.</td>
<td>1. Hang chart where all students can view it.</td>
</tr>
</tbody>
</table>
| Sugary Drink Predictions (10 min.)   | Students will predict how many cubes of sugar that the believe are contained in several favorite beverages. | 1. 4-6 bottles/containers of sugary drinks.  
2. Sugar cubes.  
3. Optional: teaspoon  
4. “Sugary Drink Predictions” (2-sided paper with questions on back) – 1 per student.  
5. Writing utensil for each student. | 1. Gather drinks and sugar cubes.  
2. Duplicate handouts – 2-sided – Predictions on front and de-brief questions on back. |
| How Much Sugar? (15 min.)             | Students will use sugar cubes to visually represent the amount of sugar in selected beverages. | 1. “Cube-stacking” handout – 1 per student or student group.              | 1. Duplicate handouts.                                   |
| De-brief and Introduction to Weekly Drink Chart (10 min.) | Students discuss implications of sugary beverages and use a form to track their beverage consumption for one week. | 1. De-brief questions on back of “Sugary Drink Predictions” handout.  
Activity #1: T-Chart

Step 1: Discussion

Say: Today we’re going to look at some drinks that we like to have and we’re going to see some surprising information about them. To help us get started, let’s think about some of the drinks we enjoy. What is something that you like to drink? (As students are sharing, write down the drinks on the t-chart. Drinks such as water, milk, 100% juice belong on one side of the chart and sugary drinks should be listed on the other side of the t-chart. After students have listed the drinks, engage them in a brief discussion.)

Why did I put these drinks in two different columns? (Invite students to respond. Then clarify.) Some drinks like milk or 100% juice are sweet because they have “natural” sugars. Other drinks like soda or fruit punch or Gatorade are sweet because they have “extra sugar added.” They are not made from natural sugars. (Invite students to add more beverages to T-chart.)

There are many, many drinks with extra sugar added and today we’re going to examine them and learn just how much added sugar is in them. We will learn that there are some drinks that are “Healthy Drinks” and we can enjoy them anytime. And there are some drinks that are “Treats” and we should have them only sometimes—not every day.

Activity #2: Sugary Drink Predictions

Step 1: Predictions

1. Distribute “Sugary Drink Predictions” handouts.
2. Have the bottles/containers available so that students can view them.
3. Hold up a sugar cube and explain that one sugar cube is the same as a teaspoon of sugar.
4. Ask students to look at the beverage containers and predict how many cubes of sugar that they think are contained in the beverage. Repeat for all beverages.
5. Give students “Actual” Amounts and have them write them down. (FYI – to calculate amount of sugar cubes per container, you first need to determine the total number of grams of sugar per container by multiplying the number of grams per serving size by the number of servings per container. Once you have the total number of grams of sugar per container, divide this number by 4 and you will have the cubes or teaspoons of sugar per container.

Activity #3: How Much Sugar?

Step 1: Sugar Sculptures

1. Distribute “Cube Stacking” handout and bags of sugar cubes to student groups.
2. Have students stack up the proper number of sugar cubes on each drink circle.
3. Ask: What surprised you about the results of this activity? What do you think will happen if you drink too many sugary drinks? (Drinking too many sugary foods can lead to cavities; weight gain—which can then lead to other health problems like diabetes and heart disease; drinking too many sugary drinks can make you too full to eat healthier foods/beverages so your body doesn’t get the nutrients it needs to grow, be strong, and be healthy.)

Activity #4: Debrief and Weekly Drink Chart
Step 1: Debrief activity

1. Have students turn over their “Sugary Drinks Predictions” handout and answer the first two questions either individually or as a class.
2. Say: Health experts have said that children your age should have no more than 5 teaspoons (or cubes) of added sugar a day. If children should have only drinks (and foods that total 5 cubes of added sugar each day, which drinks have too much sugar and should only be drunk occasionally? (Have students respond orally and they fill in Question #3 on handout).
3. Ask: Which drink is a healthy drink – a drink that you can always enjoy? (Have students respond orally and then fill in Question #4 on handout.)
4. Ask: What could you do instead of drinking beverages with lots of extra added sugar? [List these on board as students suggest them – fill in as needed – drink water; drink water with lemons or oranges in it; drink diluted fruit juice; drink milk; drink small amounts of sugary drinks – not the whole container – on rare occasions.]

Step 2: Weekly Drink Chart

1. Distribute “Weekly Drink Chart” and invite students to keep track of the sugary drinks and the water that they consume for the week.
2. Review at the end of the week to see if students have made progress in drinking more water and less sugary beverages.
Sugary Drinks Predictions-K-3

Name: ___________________________ Date: ______________

For each drink, predict how many cubes of sugar are in it.

<table>
<thead>
<tr>
<th>Drink</th>
<th>My Predictions</th>
<th>Actual amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEPSI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CapriSun</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gatorade</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VitaminWater</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1. Which drink has the **MOST** sugar?

2. Which drink has the **LEAST** sugar?

3. Which drinks are **TREATS**
   ("sometimes" drinks)?

4. Which drink is a **HEALTHY DRINK**
   (an "always" drink)?
Once you know how many cubes of sugar are in each drink, stack the cubes for each drink in the correct circle.
### Weekly Drink Chart

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Monday</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuesday</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wednesday</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thursday</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Friday</td>
<td></td>
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</tbody>
</table>
Bottled Water or Tap Water – Which is Better?  
Grades K-3

Objectives/Materials/Preparation

<table>
<thead>
<tr>
<th>Activity</th>
<th>Objectives</th>
<th>Materials</th>
<th>Preparation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Think, Pair, Share</td>
<td>Students will justify their choices with reasons.</td>
<td>1. Student-pair prompts.</td>
<td>1. Prepare prompts so that all students can see.</td>
</tr>
<tr>
<td>(10 min.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comparing Bottled Water and Tap Water</td>
<td>Students will learn how bottled water and tap water compare for cost and safety.</td>
<td>1. “Water Facts” handout – 1 per student.</td>
<td>1. Duplicate handouts.</td>
</tr>
<tr>
<td>(5 min.)</td>
<td></td>
<td></td>
<td>2. Read teacher resource materials so as to be acquainted with the comparisons</td>
</tr>
<tr>
<td>Water Taste Test</td>
<td>Students will compare the taste of bottled water and tap water through a blind test.</td>
<td>1. Enough bottled water for each student’s Dixie cup</td>
<td>1. Gather materials.</td>
</tr>
<tr>
<td>(10 min.)</td>
<td></td>
<td>2. Dixie cups- 2 per student, in 2 colors</td>
<td>2. It’s best to CHiLL water samples in advance – this helps mask some of the differences.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. 4 pitchers, 2 labeled “A” filled with tap water and 2 labeled “B” for bottled water</td>
<td></td>
</tr>
<tr>
<td>De-Brief and Summary Letter</td>
<td>Students will write a summary letter home to their families about what they learned in the previous activities.</td>
<td>1. Paper for writing task;</td>
<td>1. Gather materials.</td>
</tr>
<tr>
<td>(10-20 min.)</td>
<td></td>
<td>2. Writing utensils;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Chart paper for modeled letter;</td>
<td></td>
</tr>
</tbody>
</table>

Activity #1: Think, Pair, Share

1. Pair students and designate one student as Partner A and one student as Partner B.
2. Have students take turns responding to discussion prompts. Read aloud one prompt at a time and give both partners a chance to respond. If time permits, have some students share their response with the entire class. (Note: It would be helpful to have prompts available in written form for students to refer to.

Activity #2:

1. Distribute “Water Facts” handouts – 1 per student.
2. Complete the first two categories only at this point – which is cheaper and which is safer. Use professional judgment about how much information to give students from the teacher resource materials.

Activity #3: Water Taste Test

1. Ask students if they think they can taste the difference between bottled water and tap water. For those who think they can do so, ask what they think the difference is.
2. Tell students that they will be given two samples of water. One sample will be bottled water and one sample will be tap water. They will taste each sample and then predict which one they think is bottled and which is tap. They should circle their predictions on the “Water Facts” handout.
3. When all students have tasted and made their predictions, tally predictions on the board and then share with them the actual results.
4. Discuss – were they surprised?
5. Ask: Does this change their minds about whether they can taste the difference between bottled water and tap water?

Activity #4: De-brief and Summary Letter

1. Re-cap what students have learned: Tap water is cheaper than bottled water; Tap water is safer than bottled water; most of us can’t really tell the difference between the taste of tap water and bottled water. At the end of this, ask students if they can come up with an action statement (i.e., I will drink tap water more often; I will choose tap water instead of bottled water, etc.)
2. Have students write a letter to their families about what they learned in this activity. Depending upon abilities of students, this could be a shared writing experience or an independent writing experience.
3. Have students illustrate their letters with appropriate visuals and bring home to their families to share.
1. You need to buy a pencil for school. CVS has pencils that cost $.25 per pencil and Walgreen's has pencils that cost $.05 per pencil. Where will you get your pencil? Why?

2. You are offered an "after-school snack" of crackers and cheese after school that your friend made for you. You don't know if your friend washed his/her hands BEFORE he/she made the snack. Would you eat the snack? Why or why not?

3. You are very thirsty. On the table there is an unopened bottle of water and there are cups of water that came from the tap (faucet.) Which would you choose? Why?
### Water Facts

Name:

<table>
<thead>
<tr>
<th>Bottled water costs $1.00 (one dollar) *</th>
<th>Tap water costs $.01 (one cent) *</th>
<th>Which water is cheaper? (Circle one)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bottled</td>
<td>Tap</td>
<td>Bottled</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bottled water is NOT tested for germs.</th>
<th>Tap water IS tested for germs.</th>
<th>Which water is safer? (Circle one)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bottled</td>
<td>Tap</td>
<td>Bottled</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>TASTE TEST</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>My Prediction</strong></td>
</tr>
<tr>
<td>I think Sample A is:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample A is</th>
<th>Sample B is</th>
</tr>
</thead>
</table>

Some things that I learned about water are ____________________________

* These figures are approximations for the same amount of water.
### EPA Tap Water vs FDA Bottled Water

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Tap Water</th>
<th>Bottled Water</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Disinfection required?</strong></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>Confirmed E. Coli and Fecal Coliform Banned?</strong></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>Bacteria tests per month?</strong></td>
<td>hundreds</td>
<td>four</td>
</tr>
<tr>
<td><strong>Must filter to remove pathogens or have strictly protected source?</strong></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>Must test for Cryptosporidium, Giardia, Viruses?</strong></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>Operator must be trained and certified?</strong></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>Must test for and meet standards for asbestos &amp; phthalate?</strong></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>Must use certified labs to do testing?</strong></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>Must report violations to State and Federal agencies?</strong></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>Consumers have a right to know about contamination?</strong></td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>
Cost of Water Calculation Sheet

Bottled Water Calculations

Number of bottles of water that you drink per day

Cost of each bottle of water

Number of days in a year

Your total cost of bottled water per year

Tap Water Calculations

Amount of water that you drink per day in liters

Amount of water that you drink per day in gallons

Price per gallon of your local tap water

Price per day of your water intake in gallons

Number of days in a year

Your total cost of tap water per year

- How does the price of tap water compare to the cost of bottled water?

- What fraction of the cost of bottled water is the cost of tap water?

What is the cost difference?
The difference between the yearly cost of bottled water and tap water.

Helpful conversions:
- Typical bottled water volume=0.5 Liter
- Typical bottled water (0.5 Liter) cost= $1.50
- 1 Liter=0.264 gallons
- Price per gallon of EBMUD tap water=$0.003/gallon
Thirst for bottled water destroying the planet
The processes used to manufacture and fill the plastic bottles, as well as transporting and refrigerating the products, leave a major carbon footprint... In America alone it takes 17 million barrels of oil to supply the nation with plastic water bottles each year. [Reuters]

Nestle bottled water recall
Food conglomerate Nestle is recalling an exclusively Shoprite sold bottled water. The company sells the water in five northeastern states: Connecticut, New Jersey, New York, Pennsylvania and Delaware. The product is the one gallon container of Nestle Pure Life Drinking Water. Again that's Nestle Pure Life Drinking Water.

Nestle reports that up to 150 bottles of it may contain a diluted food cleaning solution. Shoprite has already removed their remaining stock and no illnesses yet reported. [WSTC/WNLC Norwalk, CT]

Many dumping bottled water
After years of serving bottled water, restaurants around the country are now thinking outside the bottle and serving only tap water. From New York to California, prominent restaurants like Del Poso and Chez Panisse are removing bottled water from their menus.

Chefs and business owners are learning that as much as 40 percent of bottled water actually comes from the same source as tap water. What's more, tap water is much more highly regulated than bottled water. And in the same way restaurants are concerned about the source of the foods they serve, the decision to stop serving hauled water often derives from a concern about what is happening upstream, so to speak.

In addition to crowding landfills and contributing to global warming, the bottled water industry is threatening local control of public water. To put five dollar bottles of water on tables here, communities from India to Mexico, Texas to Michigan and Maine to California are losing control of what was once considered a basic human right — something you couldn't put a dollar value on. [Morris Sun Tribune Morris, MN]
How is bottled water and corporate control of water bad for the environment and my pocketbook?
Up to 40% of bottled water comes from the same source as tap water, but is sold back to consumers at hundreds of times the cost. Producing bottles to meet Americans’ demand for bottled water required more than 17 million barrels of oil last year – enough fuel for more than 1 million U.S. cars for a year - and generated more than 2.5 million tons of carbon dioxide.

Isn’t bottled water safer/cleaner than tap water? Isn’t it better regulated or treated?
Bottled water corporations spend tens of millions of dollars each year to convince us their products are safer and more pure than tap water. But studies have shown bottled water is on average no safer than tap water and can sometimes be less safe. Both tap water and bottled water are evaluated using similar standards, but tap water is tested far more frequently and has more independent oversight by state and federal environmental authorities (EPA and DEP). Lacking adequate capacity to regulate bottled water, the government relies on bottled water corporations to police themselves, which in some cases has resulted in bottled water contaminations that have lasted for weeks before the public was warned.

What is the role of bottled water in climate change?
To bottle, transport, dispose of, and even to recycle bottled water containers requires a massive amount of energy. Making bottles to meet Americans’ demand for bottled water required more than 17 million barrels of oil last year – enough fuel for more than 1 million U.S. cars for a year - and generated more than 2.5 million tons of carbon dioxide. To visualize the entire energy costs of the lifecycle of a bottle of water, imagine filling up a quarter of each bottle with oil.

What is the global outlook on bottled water and corporate control of water resources?
The United Nations warns that by 2025, two-thirds of the world’s population – more than five billion people– will lack access to water. There are many causes, from pollution to overuse, and corporations have contributed to all of them. Now some corporations are seeking to profit from water itself by bottling it and turning it into a $100 billion global market.
Lesson Overviews and Handouts
Grades 4-5
“Sugar Shock”
How Much Sugar is in Your Favorite Drink?

Grades 4-5

Objectives/Materials/Preparation:

<table>
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<th>Activity</th>
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<th>Materials</th>
<th>Preparation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sorting Activity and Predictions (10 min.)</td>
<td>Students will activate prior knowledge by ranking photos of drinks --- MOST sugary drink to LEAST sugary drink.</td>
<td>1. Set of drink cards – one set per student group&lt;br&gt;2. “Sugary Drink Predictions” worksheet – 1 per student&lt;br&gt;3. Writing utensils for use in entire lesson.</td>
<td>1. Copy cards sets – one set per student group and “Sugary Drink Predictions” worksheets – one for each student.</td>
</tr>
<tr>
<td>Nutrition Facts Label/Sugar activity (10 min.)</td>
<td>Students will calculate the amount of sugar in a beverage by reading a nutrition label, and rank beverages based on their sugar content.</td>
<td>1. “Sugary Drink Predictions” handout – 1 per student&lt;br&gt;2. Sugary drink bottles for group activity (1 bottle per group of 3-4 students; make sure you have 6 different varieties represented)</td>
<td>1. Students should use copy from previous prediction activity.</td>
</tr>
<tr>
<td>How much sugar is it really? (15 min.)</td>
<td>Students will use sugar cubes to visually represent the amount of sugar in one or more of the featured sugary beverages.</td>
<td>1. “Cube-stacking” handout – 1 per student group.&lt;br&gt;2. Sugar cubes in bags for each group.</td>
<td>1. To save paper, ensure that “Cube-Stacking” handout is on back of “Sugary Drink Predictions” handout.</td>
</tr>
<tr>
<td>De-Brief and Health Goal (5 min.)</td>
<td>Students will discuss findings of cube-stacking activity and make a health goal related to beverage consumption.</td>
<td>1. “Beverage Health Goal” handout – 1 per student.</td>
<td>1. Duplicate handouts.</td>
</tr>
</tbody>
</table>
**Activity #1: Sorting Activity and Predictions (10 min.)**

**Step 1:** Set the Stage

1. Ask students if they know why having too much sugar in the diet is not the healthiest choice. Which disease(s) are related to having too much sugar in the diet?
2. Do a simple poll by having students raise their hands (or stand up) if they know someone with Type 2 Diabetes. Have those students keep their hands up (or remain standing) and ask the remaining students to raise their hand (or stand up) if someone who is close to them is overweight.
3. Have students lower their hands (or sit down) and ask them if they know which beverages have the most sugar.
4. Tell them that today they will learn how to use a nutrition facts label to figure out how much sugar is in the drinks that they drink.

**Step 2:** Sorting Activity

1. Show students bottles of sugary drinks. Tell them that these drinks have differing amounts of sugar in them.
2. Distribute Sugary Beverage cards – one set to each group. Have groups RANK the drinks – from the one they think has the MOST sugar to the one they think has the LEAST sugar.
3. When student groups have completed this, distribute the “Sugary Drink Predictions” handout to students – 1 per student.
4. Have students write their RANK number for the sugary beverages on their handout (1 = the drink that they think has the MOST sugar; 6 = the drink that they think has the LEAST sugar; fill in the rest of the numbers as well.)

**Activity #2: Nutrition Label and Sugar Calculation (10 min.)**

1. Ask students where they would find information about how much sugar is in the drink – [the nutrition label.] Ask students what else they need to know in order to calculate how much sugar is in the entire container [the number of servings in the bottle/can/container]
2. Tell students that in order to calculate how much sugar is in a container, they need to multiply the grams of sugar (from the nutrition label) by the number of servings in the container. Have student groups do that for the bottle/can at their table.
3. Tell students that “grams” can be kind of mysterious. Sometimes it’s more helpful to use the term “teaspoons” or to use “cubes” of sugar to represent the amount of sugar in a beverage. In order to calculate the “teaspoons” or “cubes” of sugar in a beverage, you take the total grams of sugar in the beverage (from previous calculation) and DIVIDE it by 4. That will give you the number of “teaspoons” or “cubes” of sugar (they are the same!)
4. Have students calculate the “teaspoons/cubes” of sugar for their drink. When all groups have finished, share the results as a class so that everyone can write in ALL of the answers on their “Sugary Predictions” handout. [Check their calculations for accuracy and make any necessary corrections.]
5. Have students calculate the new ranking for the sugary beverages.

Activity #3: How much sugar is it, really???

1. Distribute bags of sugar cubes to each table.
2. Have students select 1-2 drinks from their “Sugary Drink Predictions” handout.
3. Using cubes and ONE “Cube Stacking Circle” handout per group, have students represent the amount of sugar in 1-2 of the drinks from their Predictions handout.

Activity #4: Debrief and Health Goal

Whole class:

1. Use Wrap-up questions on bottom of handout to discuss the findings of these activities.
   - What, if anything, surprised you about the results of this activity?
   - What are the consequences of drinking sugary drinks?
   - What are some strategies for reducing the amount of sugary beverages that you drink?

Individual:

2. Distribute “Beverage Health Goal” handout to students. Encourage them to make one realistic Health Goal related to drinking healthy beverages and then check back in a week to see how successful they were in achieving the goal.
After you have completed the "Sugary Drink Predictions" handout, select 1-2 of the drinks from the handout. Use sugar cubes to represent the amount of sugar in those drinks. Put the cubes inside the appropriate circle.

Cranberry Grape Juice
Cherry Lemonade
Gatorade
Arizona Iced Tea
Pepsi
Vitamin Water
Sugary Drink Predictions

Name: ___________________________ Date: ___________________________

Using your “sugary drink cards,” rank the drinks from the one with the MOST sugar to the one with the LEAST sugar. The drink with the MOST sugar will get a “1” and the drink with the LEAST sugar will get a “6.” Be sure to assign numbers to the other drinks as well. Once you have predicted the ranking, you will examine the nutrition label from ONE of the bottles. From the label, calculate the amount of grams of sugar for the ENTIRE bottle. You need to look at the “Number of Servings” and the “Grams of Sugar” to do this. Then divide the total grams of sugar by “4” to determine the number of cubes of sugar in this drink. When all groups have finished their information, we will complete the charts and determine the ACTUAL ranking for each drink.

<table>
<thead>
<tr>
<th>Drink</th>
<th>OUR Prediction: Ranking (1-6)</th>
<th>Formula for Grams of Sugar in Drink</th>
<th>Formula for Cubes of Sugar in Drink</th>
<th>ACTUAL Ranking (1-6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Cranberry-Grape Juice</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B Arizona Iced Tea</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C Gatorade</td>
<td></td>
<td></td>
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<tr>
<td>D Pepsi</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E Vitamin Water</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F Cherry Lemonade</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Formula for Grams of Sugar in Drink**

\[ \text{Grams of Sugar in the Entire Bottle} = \frac{\text{Number of Servings} \times \text{Grams of Sugar}}{4} \]

**Formula for Cubes of Sugar in Drink**

\[ \text{Cubes of Sugar} = \text{Grams of Sugar} \div 4 \]

**Wrap-up:** (To be completed AFTER Cube-Stacking Activity)

1. What, if anything, surprised you about the results of this activity?

2. What are the consequences of drinking sugary drinks?

3. What are some strategies for reducing the amount of sugary beverages that you drink?
Beverage Health Goal

I know that drinking more water and less sugary beverages will help me be healthier.

For the next week I will:

Signed: ____________________________  Date: ___________

Witness: ____________________________  Date: ___________
# Bottled versus Tap - Which water is better for your health and your piggybank?

**Grades 4-5**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Objectives</th>
<th>Materials</th>
<th>Preparation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Anticipation Guide OR Four Corners (5 min.)</td>
<td>Students will activate prior knowledge about water.</td>
<td>1. Copy of “Water Anticipation Guide” – 1 per student; OR 2. 4 Agreement signs (Strongly Agree, Agree, Disagree, Strongly Disagree)</td>
<td>1. Duplicate the appropriate materials. 2. If using Agreement Signs, post them around the room.</td>
</tr>
<tr>
<td>2. Water Taste Test Activity (10 min.)</td>
<td>Students will compare the taste of bottled water and tap water through a blind test.</td>
<td>1. Enough bottled water for each student’s Dixie cup 2. Dixie cups- 2 per student, in 2 colors 3. 4 pitchers, 2 labeled “A” fill with tap water and 2 labeled “B” for bottled water 4. ‘Taste Test Score Card’</td>
<td>1. Copy 1 Taste Test Score Card per student 2. Create taste test stations with 2 cups/student, 4 pitchers, 2 filled with tap, 2 filled bottled water.</td>
</tr>
<tr>
<td>3. Water Quality Activity (10 min.)</td>
<td>Students will learn about differences in quality standards between tap and bottled water.</td>
<td>1. Power-point slide, overhead transparency or butcher paper with EPA/FDA Water Quality Chart image</td>
<td>1. Cue up slide, transparency, or butcher paper featuring EPA/FDA Water Quality Chart.</td>
</tr>
<tr>
<td>4. Cost of Water Activity (15 min.)</td>
<td>Students will calculate the cost difference between tap and bottled water.</td>
<td>1. Pencils (1 per student) 2. Calculators 3. True Cost of Water Calculation Sheet</td>
<td>1. Duplicate handouts – 1 per student.</td>
</tr>
<tr>
<td>5. Summary Activity (5 min.)</td>
<td>Students will list differences between bottled and tap water.</td>
<td>1. ‘3-2-1 Exit Card’ worksheet – 1 per student. 2. One writing utensil per student.</td>
<td>1. Duplicate handouts – 1 per student.</td>
</tr>
<tr>
<td>6. Reflection (5 min.)</td>
<td>Students will complete the Anticipation Guide or re-visit Four Corners questions</td>
<td>1. Anticipation Guide from earlier in lesson. 2. One writing utensil per student</td>
<td>1. Retrieve Anticipation Guides OR Four Corner Statements.</td>
</tr>
</tbody>
</table>
**Activity #1: Anticipation Guide (5 min.)**

**Step 1:** Distribute the Anticipation Guides.

1. Distribute Anticipation Guides prior to the lesson. Tell students that these are topics related to the material they are going to learn today and that we’re trying to determine the opinions they already have regarding water. Have them complete the “gray” section ONLY.
2. Tell students to hold onto their Anticipation Guides until the end of the lesson because they are going to answer the same question after the lesson is completed.

An alternative to Activity #1 is the following:

**Activity #1-A: Four Corners (5 min.)**

**Step 1:** Post the Agreement Signs in four different areas throughout the room.

1. To get students thinking about bottled water vs. tap water, read the statements below (one at a time) and ask students to go stand under the sign that best describes their opinion. Allow for debate; encourage students to justify and explain their positions, as time permits:
   
   a) I can definitely tell the difference between the taste of bottled water and the taste of tap water.
   b) Tap water is safer to drink than bottled water.
   c) Tap water is much more expensive than bottled water.
   d) Whenever I have a choice, I prefer to select bottled water over tap water.
   e) I think it’s important to encourage people to drink more tap water.

**Activity #2: Water Taste Test Activity (10 min.)**

**Step 1:** Groups of four will conduct blind taste test.

- Give every group 8 Dixie cups, two per student.
- Pour Water “A” in one cup and Water “B” in the other
- Students fill out the ‘Taste Test Score Card’ and circle their favorite of the two waters.

**Step 2:** Vote for Favorite, and which is Tap Water

- Students raise their hand to vote for their favorite (tally on the board).
- Students vote to guess which is “bottled” water and which is “tap.” Tally on the board.
- Reveal the secret identity of Water A and Water B.

**Step 3:** Debrief

- *Has this activity changed the way anyone will decide where to get their water in the future?*

**Activity #3: Water Quality (10 min.)**
1. Project the EPA vs. FDA Bottled Water chart via Power point, transparency, or butcher paper during discussion.

2. Walk through the EPA/FDA Water Quality Chart with the students. Some points to highlight include:
   a) The Environmental Protection Agency (EPA) checks tap water for contaminants to make sure it’s safe to drink. The Food and Drug Administration (FDA) regulates bottled water.
   b) This chart shows that these two agencies have different standards. For example, disinfection (i.e., getting rid of germs) is required for tap water, but not required for bottled water.

3. Have students point out other differences they see between tap water and bottled water regulations that are surprising to them. Define terms that are unfamiliar to students, as needed:
   a) E Coli - a large and diverse group of bacteria. Although most strains of E. coli are harmless, others can make you sick. Some kinds of E. coli can cause diarrhea, while others cause urinary tract infections, respiratory illness and pneumonia, and other illnesses. (Taken from CDC)
   b) Fecal Coliform - coliforms are used as indicators of possible sewage contamination because they are commonly found in human and animal feces. Although they are generally not harmful themselves, they indicate the possible presence of pathogenic (disease-causing) bacteria, viruses, and protozoans that also live in human and animal digestive systems. (Taken from EPA)
   c) Pathogens - a biological agent that causes disease or illness to its host (Taken from Science Daily)
   d) Cryptosporidium - a microscopic parasite that causes the diarrheal disease cryptosporidiosis; this parasite can be spread in several different ways, water (drinking water and recreational water) is the most common method of transmission (Taken from CDC)
   e) Giardia - a microscopic parasite that causes the diarrheal illness known as giardiasis, found on surfaces or in soil, food, or water that has been contaminated with feces (poop) from infected humans or animals. (Taken from CDC)
   f) Asbestos - a mineral fiber that occurs in rock and soil, exposure to asbestos increases your risk of developing lung disease (Taken from EPA)
   g) Phthalate - Phthalates are used in hundreds of consumer products including cosmetics, personal care products, detergents, adhesives, building materials, etc. (Taken from National Library of Medicine, NIH)

4. Ask students what they think about this information. Lead a discussion about this, time permitting.

Activity #4: Cost of Water (15 min.)

1. Use ‘True Cost of Water Calculation Sheet’ with the class to figure out the costs associated with bottled water. Tell students to refer to the “helpful conversions” on the worksheet (cost of tap water, etc.) to help with their calculations. Have all students use 1 bottled water per day for ease and standard calculations across the entire class.

2. Discuss the annual differences between costs of bottled and tap water.

3. Time permitting, have students answer the on the ‘True Cost of Water Calculation Sheet’ starting with “How does the price of tap water compare to the cost of bottled water?”

4. Ask students “What do you think about the cost difference of bottled and tap water? Does this information make you think twice about anything in your own life/behaviors?”
**Activity #5: Summary (5 min.)**

1. Have students fill out the’ 3-2-1 Exit’ card and discuss answers, time permitting.

**Activity #6: Reflection (5 min.)**

**Step 1:**

1. Ask the students to take out their original Anticipation Guide and complete the section entitled “Finding.” What we’re asking is whether or not the information learned in the activities supported their initial opinion (in “gray” section). Invite students to discuss as time permits

OR

**Step 1A:**

1. Revisit statements for Four Corner Activity and ask students to physically move again or to simply state if their original opinion had changed. Dig deeper as time permits.
<table>
<thead>
<tr>
<th>Statements about Water</th>
<th>Opinion</th>
<th>Finding</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Agree</td>
<td>Disagree</td>
</tr>
<tr>
<td>I can definitely <strong>taste the difference</strong> between <strong>bottled</strong> water and <strong>tap</strong> water.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Tap</strong> water is <strong>safer</strong> for me to drink than bottled water.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Tap</strong> water is much <strong>more expensive</strong> than bottled water.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whenever I have a choice, I <strong>prefer</strong> to select <strong>bottled</strong> water over tap water.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I think it's important to encourage people to drink <strong>more tap</strong> water.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
AGREE
DISAGREE
STRONGLY AGREE
STRONGLY DISAGREE
## Tasting Notes

<table>
<thead>
<tr>
<th></th>
<th>Water A</th>
<th>Water B</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Smell</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Taste</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Is this TAP water or BOTTLED water?</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Tasting Notes

<table>
<thead>
<tr>
<th></th>
<th>Water A</th>
<th>Water B</th>
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</thead>
<tbody>
<tr>
<td><strong>Smell</strong></td>
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<td></td>
</tr>
<tr>
<td><strong>Taste</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Is this TAP water or BOTTLED water?</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### EPA Tap Water vs FDA Bottled Water

<table>
<thead>
<tr>
<th></th>
<th>Tap Water</th>
<th>Bottled Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disinfection required?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Confirmed E. Coli and Fecal</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Coliform Banned?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bacteria tests per month?</td>
<td>hundreds</td>
<td>four</td>
</tr>
<tr>
<td>Must filter to remove pathogens or</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>have strictly protected source?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Must test for Cryptosporidium,</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Giardia, Viruses?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operator must be trained and</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>certified?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Must test for and meet standards for</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>asbestos &amp; phthalate?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Must use certified labs to do testing?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Must report violations to State and</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Federal agencies?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumers have a right to know</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>about contamination?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Cost of Water Calculation Sheet

**Bottled Water Calculations**

Number of bottles of water that you drink per day

Cost of each bottle of water

Number of days in a year

Your total cost of bottled water per year

**Tap Water Calculations**

Amount of water that you drink per day in liters

Amount of water that you drink per day in gallons

Price per gallon of your local tap water

Price per day of your water intake in gallons

Number of days in a year

Your total cost of tap water per year

- How does the price of tap water compare to the cost of bottled water?

- What fraction of the cost of bottled water is the cost of tap water?

**What is the cost difference?**
The difference between the yearly cost of bottled water and tap water.

**Helpful conversions:**
- Typical bottled water volume=0.5 Liter
- Typical bottled water (0.5 Liter) cost=$1.50
- 1 Liter=0.264 gallons
- Price per gallon of EBMUD tap water=$0.003/gallon
Thirst for bottled water destroying the planet
The processes used to manufacture and fill the plastic bottles, as well as transporting and refrigerating the products, leave a major carbon footprint... In America alone it takes 17 million barrels of oil to supply the nation with plastic water bottles each year. [Reuters]

Nestle bottled water recall
Food conglomerate Nestle is recalling an exclusively Shoprite sold bottled water. The company sells the water in five northeastern states: Connecticut, New Jersey, New York, Pennsylvania and Delaware. The product is the one gallon container of Nestle Pure Life Drinking Water. Again that’s Nestle Pure Life Drinking Water.

Nestle reports that up to 150 bottles of it may contain a diluted food cleaning solution. Shoprite has already removed their remaining stock and no illnesses yet reported. [WSTC/WNLK Norwalk, CT]

Many dumping bottled water
After years of serving bottled water, restaurants around the country are now thinking outside the bottle and serving only tap water. From New York to California, prominent restaurants like Del Poso and Chez Panisse are removing bottled water from their menus.

Chefs and business owners are learning that as much as 40 percent of bottled water actually comes from the same source as tap water. What’s more, tap water is much more highly regulated than bottled water. And in the same way restaurants are concerned about the source of the foods they serve, the decision to stop serving hauled water often derives from a concern about what is happening upstream, so to speak.

In addition to crowding landfills and contributing to global warming, the bottled water industry is threatening local control of public water. To put five dollar bottles of water on tables here, communities from India to Mexico, Texas to Michigan and Maine to California are losing control of what was once considered a basic human right — something you couldn’t put a dollar value on. [Morris Sun Tribune Morris, MN]
Go Green News 2

From FAQ at www.thinkoutsidethebottle.org

How is bottled water and corporate control of water bad for the environment and my pocketbook?
Up to 40% of bottled water comes from the same source as tap water, but is sold back to consumers at hundreds of times the cost. Producing bottles to meet Americans’ demand for bottled water required more than 17 million barrels of oil last year – enough fuel for more than 1 million U.S. cars for a year - and generated more than 2.5 million tons of carbon dioxide.

Isn’t bottled water safer/cleaner than tap water? Isn’t it better regulated or treated?
Bottled water corporations spend tens of millions of dollars each year to convince us their products are safer and more pure than tap water. But studies have shown bottled water is on average no safer than tap water and can sometimes be less safe. Both tap water and bottled water are evaluated using similar standards, but tap water is tested far more frequently and has more independent oversight by state and federal environmental authorities (EPA and DEP). Lacking adequate capacity to regulate bottled water, the government relies on bottled water corporations to police themselves, which in some cases has resulted in bottled water contaminations that have lasted for weeks before the public was warned.

What is the role of bottled water in climate change?
To bottle, transport, dispose of, and even to recycle bottled water containers requires a massive amount of energy. Making bottles to meet Americans’ demand for bottled water required more than 17 million barrels of oil last year – enough fuel for more than 1 million U.S. cars for a year - and generated more than 2.5 million tons of carbon dioxide. To visualize the entire energy costs of the lifecycle of a bottle of water, imagine filling up a quarter of each bottle with oil.

What is the global outlook on bottled water and corporate control of water resources?
The United Nations warns that by 2025, two-thirds of the world’s population – more than five billion people – will lack access to water. There are many causes, from pollution to overuse, and corporations have contributed to all of them. Now some corporations are seeking to profit from water itself by bottling it and turning it into a $100 billion global market.
3-2-1 Exit Card

Name: ___________________________ Date: ______________

3 Differences in quality standards between tap water and bottled water:
   a) ________________________________
   b) ________________________________
   c) ________________________________

2 Reasons to drink tap water rather than bottled water:
   e) ________________________________
   f) ________________________________

1 Small change that I will make in my life regarding tap water:
   g) ________________________________
# The Body Water Cycle

**Grades 4-5**

**Objectives/Materials/Preparation:**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Objectives</th>
<th>Materials</th>
<th>Preparation</th>
</tr>
</thead>
</table>
| K-W-L (2 min.) | Students will activate prior knowledge about the Body Water Cycle by completing the first two columns of K-W-L Chart | 1. K-W-L chart – 1 per student  
2. One writing utensil per student | 1. Duplicate K-W-L chart. |
| How Does Water Move? (40 min.) | Students will understand how water moves through our bodies and the importance water plays in proper body function. | 1. Butcher paper or white board  
2. Markers  
3. Powerpoint or butcher paper with ‘Blank Body Water Cycle Diagram’ visual  
4. Copies of ‘Spending Time as Water’ worksheet for each student  
5. Eleven Station Signs  
6. Movement Cards  
8. Pencil for each student  
9. Clipboard for each student (if needed)  
10. Calculator for each student (if needed) | 1. Duplicate a  
   *Spending Time as Water* worksheet for each student.  
2. Print out station signs and movement cards.  
3. Cut out Movement Cards.  
4. Create Station areas and post Station Signs.  
5. Put the Movement Cards in a container (preferably one that students can see into) at the appropriate stations.  
6. Cue Power-point or butcher paper with blank ‘Body Water Cycle Diagram’ image.  
| K-W-L (3 min.) | Students will complete the "L" portion of the K-W-L chart. | 1. K-W-L chart  
2. One writing utensil per student | |
Activity #1: K-W-L Chart (2 min.)

Step 1:
1. Distribute handouts to students.
2. Have them complete the first two columns ONLY and then collect the papers to be distributed again at the end of the lesson.

Activity #2: How Does Water Move? (40 min.)

Step 1: Setting the stage and creating a hypothesis.
1. Ask students for examples of how water enters our body (e.g., eating, drinking, etc.) and leaves it (e.g., tears, sweat, urine, feces, etc.) – See ‘Body Water Cycle: Teachers’ Guide’ for answers. Write their answers on the board and explain that in today’s activity, they will learn about what water does after it enters and before it leaves our bodies and why water is so important in keeping our bodies healthy.
2. Project the blank ‘Body Water Cycle Diagram’ and distribute the ‘Spending Time as Water’ worksheets.
3. Walk through the ‘Body Water Cycle Diagram’ with the students, highlighting the path of water in through food and drink, through the different parts of the body and then out through various methods, drawing from the examples that the students came up with. Explain that students will learn specific functions of water in the various parts of the body when they play today’s game.
4. Explain that the ‘Source’ column on the worksheet lists some locations where water will spend time in the body. Ask students to predict (create a hypothesis about) which ‘source’ they will spend the most time in (i.e., have the most turns in).
5. Have the students write their hypothesis on the worksheet (e.g., I think water spends the most time in...because...) and mark their guess with an ‘X’ in the appropriate column.
6. Ask a few students to share their hypothesis and explain their rationale (i.e., perhaps they think because, there is more water there so they will spend more time there than in the body).

Step 3: Divide the class equally amongst all eleven of the water stations.

Step 4: Explain the ‘Spending Time as Water’ instructions and demonstrate to model it for students.
1. Emphasize that we are now becoming water molecules and pretending that we are moving through the body as water.
2. Select a Movement Card.
3. Read the Movement Card aloud and follow the card’s directions, moving to the appropriate next station. For example, if a student at the “Bones” Station draws the card that says, “You keep bones from grinding against each other. Go to Blood,” the student will move to the “Blood Station.”
4. Tally the stations that you visit (in the example above, there would be a tally for Bones and a tally for Blood) and write down the functions of water (in the example above, the water function for Bones would be preventing bones from grinding against each other) on your ‘Spending Time as Water’ worksheet.
5. Continue for at least 10 minutes.

Step 5: Students calculate where they spend the most time.
1. Have students add up the total amount of turns spent in each station to determine where they spent the most time.

**Step 6:** Debrief activity.

1. Ask for a few volunteers to share their results from the ‘Spending Time as Water’ activity. Use prompting questions such as: What station did you visit most? Who else visited that station most? Was your experience different? What does this mean/Why do you think this was the case? Why are these parts of the cycle important?
2. Compare the students’ actual results with the predictions made at the beginning of the activity. Were the predictions close? What was different or unexpected?
3. Acknowledge that we all had different experiences as water traveling through the body. Then, ask students what all of our bodies have in common (answer: We all need water to function.)
4. Project the blank ‘Body Water Cycle Diagram’. Go through all of the stations in the body (all stations except the ‘Food and Drink’ and ‘Water Cycle’ stations) and ask students to share at least one function that water plays for each of those parts of the body (e.g., The function of water in joints is to prevent bones from grinding against one another.) Check their answers with the ‘Body Water Cycle: Teachers’ Guide’. Write their responses on the butcher paper or White Board, directly onto the blank ‘Body Water Cycle Diagram,’ if possible.
5. Ask students how eliminating the ‘Food and Drink station’ (i.e. reducing the amount of water you took in) would affect our body.
6. Ask students to share something new that they learned from this activity.
7. If you have extra time, some additional debrief questions are as follows:
   a. Why is this topic of the body water cycle important?
   b. What questions do you still have about the body water cycle?
   c. What did you find most interesting about this lesson?

**Activity #3:** K-W-L revisited

**Step 1:**

1. Distribute K-W-L charts to students.
2. Have them complete the “L” portion of the chart.
3. Discuss as time permits
# K-W-L Chart

<table>
<thead>
<tr>
<th>Things I <strong>Know</strong> About the Body Water Cycle</th>
<th>Things I <strong>Would Like to Know</strong> about the Body Water Cycle</th>
<th>Things I <strong>Learned</strong> about the Body Water Cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Body Water Cycle: Teachers’ Guide

Use this guide when checking students’ answers for ways water enters and leaves our body as well as the functions of water in different parts of the body.

**Water In:** Food (especially watery fruits and vegetables) and drink (especially water)

**Water Out:** Feces (poop), Urine (pee), spit, exhaled as water vapor, sweat, tears

**Mouth:** Water is needed to make saliva in the mouth. Saliva is needed for swallowing and digesting food and preventing chapped lips.

**Liver & Kidneys:** Your liver and kidneys use water to remove wastes that leave your body through urine and poop. Your kidneys help keep your blood pressure normal.

**Brain:** Water helps to send messages from the brain to the rest of the body; helping the heart to pump, muscles to move, and more. Water also protects the brain from injury.

**Joints and bones:** Water protects joints, preventing them from grinding against each other. In joint fluid, water makes it easier for joints to bend and move.

**Lungs:** Water helps move oxygen from the air from the lungs into the blood. Every breath we take uses water to warm air and move air into and out of your body.

**Skin:** Water cools the body down as sweat. Water helps to keep our skin from drying out.

**Eyes:** Water is needed to flush away dirt and grime from the eyes. Water is needed to make tears when you feel like crying.

**Stomach:** Water helps our bodies digest nutrients like vitamins from foods and drinks. Water helps us go to the bathroom.

**Blood:** Water in blood helps deliver important things (like oxygen from the air and vitamins from foods and drinks) to your body’s cells.
**Spending Time as Water**

Create a hypothesis about where you will spend the most time and why. Mark your guess in the "Guess" column and complete the "Hypothesis" statement. As you move through each station, write down ONE of the functions of Water in the "Function of Water" section. Then place a tally mark in the "Tally of Turns" section EACH time you visit a station. At the end of the activity, record the tally totals in the Total column and circle the station where you actually spent the most time. (This might be different than your Hypothesis — that's okay!)

**Hypothesis:** I think I will spend the MOST time at the __________________________ Station because __________________________

<table>
<thead>
<tr>
<th>Stations (Water Sources)</th>
<th>Guess (mark w/ X)</th>
<th>Function of Water</th>
<th>Tally of Turns</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food and Drink</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Cycle</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skin</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lungs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Joints &amp; Bones</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brain</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liver and Kidneys</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mouth</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eyes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blood</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stomach</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Station

Skin

out.

Keep your skin from drying as sweat. Water helps to cool your body down.
Station

Drink

Food &

Water is the best drink of all. Water is found in most vegetables and all drinks. Especially fruits and foods.
Water moves through the water cycle as rain, snow, rivers, oceans, and clouds. Even the water in foods and drinks and in your body is part of the water cycle.
Your mouth needs water to make spit. Spit is needed for swallowing and breaking down food and keeping your lips from getting chapped.

Station

Mouth
Your kidneys help keep your blood pressure normal. They leave your body water to get rid of wastes through urine and poop.

Liver & Kidneys
Water helps send messages from your brain to the rest of your body. Water also protects your brain from injury.

Station

Brain
Water protects your joints, keeping them from grinding against each other. Water in joint fluid helps joints bend and move.

Station

Joints & Bones
Station

Your body moves air into and out of water to warm the air and water makes it easier for air to cross from the lungs into the bloodstream. Every breath uses the blood.
Your eyes need water to flush away dirt and grime. Also, water is needed to make tears when you feel like crying.

Station

Eyes
Water in your blood helps deliver important things (like oxygen from the air and vitamins from foods and drinks) to your body’s cells.
Water helps your body digest nutrients like vitamins from the things you eat and drink. Water helps you go to the bathroom.

Stomach

Station
<table>
<thead>
<tr>
<th>Water</th>
<th>Food &amp; Drink</th>
<th>Water</th>
<th>Food &amp; Drink</th>
</tr>
</thead>
<tbody>
<tr>
<td>Move to the stomach.</td>
<td>Drink or water.</td>
<td>Leave the body in the end of the stomach.</td>
<td>Move all the way to the water cycle.</td>
</tr>
<tr>
<td>Enter the body as a water.</td>
<td>Fruit swallowed.</td>
<td>Get chewed up and swallowed.</td>
<td>Move to the vegetable.</td>
</tr>
<tr>
<td>Food &amp; Drink</td>
<td>Water</td>
<td>Vegetable</td>
<td>Food &amp; Drink</td>
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</table>
The Water Cycle:

1. Stay in the Water
2. Rain as Rain
3. Become clean water
4. Move to the Food Station
5. Yummy Fruit or Vegetable
6. Become part of a plant
7. Enter the Tap

This cycle repeats indefinitely, sustaining life on Earth.
Get released as brain

and more.

Pump, muscles to move.

Helping the heart to

the rest of the body.

You help to send

Sends

Protection

Brain

Thick. Go to blood.

Get released as brain

from injury.

You protect the brain

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Brain
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<th>Cleaning</th>
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<tbody>
<tr>
<td>You produce tears which help to relieve stress. Leave the body as tears. Go to Water Cycle.</td>
<td>You help get rid of things that could hurt the eyes like dirt, smoke, and dust. Drain into nasal cavity. Go to Mouth.</td>
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Enjoy these tasty water alternatives to sugar sweetened beverages:

**Watermelon Basil Water**
- 2 cups of seedless watermelon, cubed
- Ten to 12 basil leaves
- One half gallon of water

**Cucumber Melon Water**
- One large cucumber, sliced
- 1/4 honeydew melon, cubed
- 1/4 cantaloupe, cubed
- One half gallon of water

**Pineapple Mint Water**
- 2 cups of pineapple, cubed
- Ten mint leaves
- One half gallon of water

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Nutrition Services • 3600 Telegraph Ave. • Oakland, CA 94609 • 510-595-6454 • www.healthylivingforlife.org

This material was produced by the California Department of Public Health’s Network for a Healthy California with funding from USDA SNAP, known in California as CalFresh (formerly Food Stamps). These institutions are equal opportunity providers and employers. CalFresh provides assistance to low-income households and can help buy nutritious foods for better health. For CalFresh information, call 1-877-847-3663. For important nutrition information, visit www.cachampionsforchange.net.