



WATER

curriculum

for middle/high school students

Water Curriculum

Summary

Students drink water every day but rarely think about how their bodies need and use water. With this curriculum, students will learn why water is the healthiest drink of choice, why water is better to drink than sugary beverages and what changes were made at their school so that they can locate the new water stations that provide treated, safe and tasty water.

Additionally, students will develop a better understanding of where their local tap water comes from and the processes that it undergoes to make the water safe to drink. They will learn the advantages of using tap water instead of bottled water, and how our environment benefits from this. Students will also learn about where their water comes from and whether it is safe.

Students are provided promotional, reusable water bottles as an easy and eco-friendly way for to access water. Bottles can be kept at schools (e.g., in the cafeteria or classrooms) or students can bring them to/from school.

Important Note to Teachers!

As you conduct this training, remember to emphasis that **not all schools and student homes have safe drinking water**. If the tap water does not meet legal water quality standards, it is important to encourage the students to continue to drink bottled water.

Classroom Time: 60 minutes

Audience: Junior High School and High School Students

Preparation

- Promotional Materials:
 - Sample posters that encourage drinking tap water
 - Water Fountain Safety Signs that identify and locate safe water stations around campus (if applicable)
 - Promotional water bottle for students (if applicable)
- Activity Materials:
 - Activity 1: Losing and Replacing Water in Your Body: 1- 2 liter soda bottle filled with water, two-cup liquid measuring cup
 - Activity 2: Show Me the Sugar!: 1-2 boxes of sugar cubes (including one pre-made bag with 28 sugar cubes in it); each sugar cube should be 1 teaspoon of sugar (normal size), 1 empty 20 ounce cola bottle, 4-5 empty drink containers with nutrition labels attached.
 - Activity 3: Research Project – Understanding Where Your Water Comes From: Current Consumer Confidence Report (ordered ahead of time) for district area
 - Activity 4: Create Simple Water Filtration System: Empty 2-liter soda bottles, scissors, filter materials (e.g., paper napkins or towels, gravel, sand and cotton balls), dirty water materials (e.g., cooking oil, paper, Styrofoam, dirt, salt)
 - Activity 5: Be the Change You Want to See: Colored markers, paper or poster boards
- Video (Optional): Share the Love, Share the Water, The University of California, San Francisco Department of Pediatrics, Philip R. Lee Institute for Health Policy Studies, and the Center for Vulnerable Populations at San Francisco General Hospital have launched a new video in English and Spanish to encourage families to drink water.

Videos can be found:

English: <https://www.youtube.com/watch?v=aJjDoKIN7Lw>

Spanish: <https://www.youtube.com/watch?v=KpOQ2sHD5u8>

Lesson Key:

Icon	Description
	Gives you an idea of what to say. It is not meant to be read verbatim; however, you can summarize the information provided and speak to the students using your own words.
	Prompts you to ask the students a question.
	Represents important information and/or activities for the instructor to emphasize with students.
	Prompts you to view a video.



INTRODUCTION

Today we're going to talk about water and why it is so healthy for us. Drinking water is the best way to quench your thirst. Even better, it doesn't come with all the sugar found in juice, soda and sports drinks.

Water is the healthiest choice:

- Water is good for your teeth
- Water is good for health and performance
- Water is inexpensive
- Best of all, water tastes good!!



Not all schools have safe drinking water. If the tap water does not meet legal water quality standards, it is important to encourage the students to continue to drink bottled water.



Why do we need water?



Water is more important than food to your body. You can only survive up to three days without water while you can survive for up to three weeks without food. The adult body is composed of approximately 60 percent water. The brain is nearly 70 percent water and the lungs 90 percent water.

Review the following points to help students understand how important it is to drink water for normal and healthy body functions:

Body Part	What does Water Do?
Joints and bones	Protects joints, preventing them from grinding against each other. In joint fluid, water makes it easier for joints to bend and move.
Lungs	Moves oxygen from the air through the lungs into the blood. Every breath we take uses water to warm air and move air into and out of our bodies.

	<table border="1"> <tr> <td>Skin</td> <td>Cools the body down (sweat). Water keeps skin from drying out.</td> </tr> <tr> <td>Eyes</td> <td>Flushes away dirt and grim from the eyes and makes tears when you feel like crying.</td> </tr> <tr> <td>Stomach</td> <td>Digests nutrients like vitamins from food and drinks. Water helps us go to the bathroom.</td> </tr> <tr> <td>Blood</td> <td>Delivers important things (like oxygen from the air and vitamins from foods and drinks) to your body cells.</td> </tr> <tr> <td>Mouth</td> <td>Makes saliva in the mouth that is needed to swallow, digest food and prevent chapped lips.</td> </tr> <tr> <td>Liver & Kidneys</td> <td>Removes waste that leaves your body through urine and poop. Your kidneys help keep your blood pressure normal.</td> </tr> <tr> <td>Brain</td> <td>Sends messages from the brain to the rest of the body; helping the heart to pump, muscles to move and more. Water also helps the brain from injury.</td> </tr> </table>	Skin	Cools the body down (sweat). Water keeps skin from drying out.	Eyes	Flushes away dirt and grim from the eyes and makes tears when you feel like crying.	Stomach	Digests nutrients like vitamins from food and drinks. Water helps us go to the bathroom.	Blood	Delivers important things (like oxygen from the air and vitamins from foods and drinks) to your body cells.	Mouth	Makes saliva in the mouth that is needed to swallow, digest food and prevent chapped lips.	Liver & Kidneys	Removes waste that leaves your body through urine and poop. Your kidneys help keep your blood pressure normal.	Brain	Sends messages from the brain to the rest of the body; helping the heart to pump, muscles to move and more. Water also helps the brain from injury.
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	<p>What does it mean to be hydrated?</p>														
	<p>To be properly hydrated means that your body has enough water to function at its best. Not having enough fluid in your body can cause headaches, fatigue, crankiness and poor concentration. It also affects your sports and academic performance.</p> <p>It is important to continually rehydrate throughout the day.</p>														
	<p>How does your body lose water?</p>														

	<p>Some ways your body loses water are:</p> <ul style="list-style-type: none"> • When it's hot! • When you have a temperature • When you are active (playing sports, running, etc.) • When you go to the bathroom • Even when you breathe in and out...you lose water! 												
	<p>Activity 1: Losing and Replacing Water in Your Body</p> <p>Learning Outcome: The following activity teaches students that we can replace water that our bodies need by drinking plenty of water.</p> <p>Materials needed</p> <ul style="list-style-type: none"> Two-liter bottle filled with water Two-cup liquid measuring cup w/ ml measurements <p>Instructions</p> <ol style="list-style-type: none"> 1. Show students the two-liter container. 2. Tell them this is the amount of liquid that an average adult will lose every day. 3. Ask one student to pour out 400 ml into a measuring cup. 4. Tell them this is how much fluid you lose just from breathing. 5. Explain most people need eight to 12 cups of water daily from drinking water and other beverages. Emphasize the importance of drinking fluids. 												
	<p>The U.S. Department of Agriculture recommends different amounts of water based on age, sex and health status.</p> <p>Review the following <u>Recommended Daily Intake of Water</u> chart with students</p> <table border="1" data-bbox="381 1522 1339 1795"> <thead> <tr> <th>Age</th> <th>Males</th> <th>Females</th> </tr> </thead> <tbody> <tr> <td>9-13</td> <td>2.4 liters</td> <td>2.1 liter</td> </tr> <tr> <td>14-18</td> <td>2.7 liters</td> <td>2.3 liters</td> </tr> <tr> <td>Adults</td> <td>2.7 liters</td> <td>2.7 liters *</td> </tr> </tbody> </table> <p>* Women need at least 3 liters of water during pregnancy and 3.8 liters daily for lactation.</p>	Age	Males	Females	9-13	2.4 liters	2.1 liter	14-18	2.7 liters	2.3 liters	Adults	2.7 liters	2.7 liters *
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	<p>Important points</p> <p>Review the following points to help students understand the importance of drinking water and staying hydrated:</p> <ul style="list-style-type: none"> • Make sure you drink plenty of water before, during and after physical activity to put back what you lose through sweat. Sports drinks which contain electrolytes have been shown to have benefits when you exercise for more than one hour. Sports Medicine Australia says that while water replaces lost fluids, sports drinks (containing 4 - 8 percent carbohydrate and small amounts of electrolytes) also provide additional energy and salts. Sports drinks, though, have a lot of extra sugar, so be careful! • It's a good idea to drink water regularly even if you are not thirsty. • When you are thirsty, your body is already 1percent dehydrated. This level of dehydration can result in poor mental capacity (thinking), headaches, feeling tired, stomachaches, decreased athletic performance, and moodiness. • Academic performance will improve if you maintain good hydration.¹ That afternoon fogginess and sleepiness may be due to not drinking enough water. <p>(Optional) Print and hand out <u>Fit Facts</u> (under Water Promotion category) for the students to take home and review with their families. http://healthylivingforlife.org/tools.php</p>
	<p>Did you know water is good for your teeth?</p>
	<p>Water is not only healthy, it protects your teeth from decay and cavities! Drinking sugary drinks can be very bad for your teeth.</p> <ul style="list-style-type: none"> • Sugary beverages like soda, juice, and sports drinks feed the bacteria in your mouth, allowing tooth decay and cavities to set in. • Drinking water promotes overall health and development. • Unlike soda, water doesn't contain any sugar or calories. • Most tap water contains fluoride which helps develop strong teeth.

¹ "The Surgeon General's Vision for a Healthy and Fit Nation, 2010". US Department of Health and Human Services. <http://www.surgeongeneral.gov/library/obesityvision/obesityvision2010.pdf>

	<p>How many pounds of sugar and sweeteners do you think the average American consumes in a year?</p>
	<p>The answer is 100 pounds which is almost a quarter pound of sugar a day, or 28 teaspoons (hold up a bag with 28 cubes of sugar). Most of this comes from sugar and sweeteners that manufacturers add to food and drinks, and we consume this most often in sodas and other sweetened beverages.</p> <p>Sugar sweetened drinks are not a necessary part of a healthy diet. They should only be consumed occasionally – not every day.</p> <p>Let's take a look at how much sugar is a few of the most popular drinks today.</p>
	<p>Activity 2: Show Me the Sugar!</p> <p>Learning outcome: The following activity teaches students how much extra sugar and sweetener is added to sodas and other sweetened beverages.</p> <p>Materials needed</p> <ul style="list-style-type: none"> 20 ounce cola bottle 1-2 boxes of sugar cubes (one bag filled with 17 sugar cubes) 4-5 empty or full sugary drink bottles (see suggested list) Box of sugar cubes <p>Instructions</p> <ol style="list-style-type: none"> 1. Show students how to calculate the amount of sugar in a sugary drink using the information on the side of the beverage. <u>Example: Coca Cola (65 grams of sugar)</u> $65 \text{ grams of sugar} \div 4 = 16.25 \text{ teaspoons of sugar}$ (round up to <u>17</u> teaspoons) 2. Show students what 17 teaspoons of sugar looks like by placing 17 sugar cubes in front of a 20 ounce cola. 3. Pick four to five of the following sugary beverages from the following list and display them at the front of the room. Ask for volunteers to guess how many teaspoons are in each drink and place the number of sugar cubes in front of the drink.

	Drink	# of sugar cubes
	8 oz. Unsweetened tea (0 tsp)	0
	8 oz. Whole milk (3 tsp)	3
	20 oz. Flavored milk (8 tsp)	8
	20 oz. Sports drink (12 tsp)	12
	16 oz. Sweetened tea (13 tsp)	13
	20 oz. Lemonade (14 tsp)	14
	20 oz. Fruit drink (14 tsp)	14
	20 oz. Chocolate milkshake (14 tsp)	14
	20 oz. Energy drink (17 tsp)	17
	20 oz. Coca-Cola (17 tsp)	17
	20 oz. Orange juice (18 tsp)	18
	20 oz. Slush drink (20 tsp)	20
	20 oz. Cranberry juice (20 tsp)	20
	16 oz. Orange drink (21 tsp)	21

	<p>(Optional) The University of California, San Francisco Department of Pediatrics, Philip R. Lee Institute for Health Policy Studies, and the Center for Vulnerable Populations at San Francisco General Hospital have launched a new video in English and Spanish to encourage families to drink water.</p> <p>Videos can be found at: English: https://www.youtube.com/watch?v=aJjDoKIN7Lw Spanish: https://www.youtube.com/watch?v=KpOQ2sHD5u8</p>
	<p>Important points</p> <p>Review the following points to help students understand the importance of choosing water over sugary drinks:</p> <ul style="list-style-type: none"> • Water is the best drink for you. It quenches your thirst without

giving you all the sugar and additives found in fruit drinks and juices, soft drinks, sports drinks and flavored mineral waters.

- Drinking water also helps rinse your mouth and prevent tooth decay. Most tap water contains fluoride which helps develop strong teeth. On top of that, tap water is inexpensive compared to all other drinks.
- If exercising for more than 60 minutes, a sports drink may be the best choice as it helps you maintain your body's electrolyte balance and provides you with more energy since they contain carbohydrates. With that said, high sugar intake is one of the main contributing factors to obesity in the country. Some people choose a sport drink thinking it's the better choice. Try drinking one water equivalent for every sports drink consumed.
- Sugar sweetened drinks are not a necessary part of a healthy diet. They should only be consumed occasionally – not every day.

Review ways to make drinking water more fun.

- Flavor it: Some people, especially kids in the habit of drinking juice or sports drinks, think water is too plain. Don't fight with them. Splash in a little lemon or lime juice. Throw in frozen fruit (raspberries work great for this), or mint leaves. You'll add enough flavor to get them to drink it, which is what's important.
- Get it icy cold: Kids love ice. Even for adults there's something fun and a bit festive about clinking cubes in a glass.
- (Optional) Print and hand out Spa Water recipes – English and Spanish (under Water Promotion category) for the students to take home and get creative with fun water recipes that make the water in their water bottle taste yummy.
<http://healthylivingforlife.org/tools.php>

We want to make sure you know that the water in your school is safe to drink. The water is tested and treated so that it is free of harmful germs, chemicals, and minerals. Let's take a look a closer look at where we get our water and how you can tell if it is safe to drink.



Do you know where drinking water comes from?



Roughly 70 percent of the earth's surface is covered in water. Even though water seems to be everywhere, not all of it is suitable for use as drinking water. Most of the water makes up the oceans, which is salty and cannot easily/readily be used as drinking water.

Of all the water on earth, only 3 percent is fresh water, with much of it frozen or underground. Less than 1 percent of the water on earth can be used as drinking water!

The drinking water supplied by public water systems to our homes comes from either surface water or ground water.

Type of Water	Description
Surface	Water that collects in streams, rivers, lakes, and reservoirs.
Ground	Water located below the ground where it collects in pores and spaces within rocks and in underground aquifers. Ground water is obtained by drilling wells and pumping it to the surface. A private well uses ground water as its water source. Owners of private wells and other individual water systems are responsible for ensuring that their water is safe from contaminants.



How can you tell the water in your home is safe to drink?



Both the U.S. Environmental Protection Agency (EPA) and the California State Water Resources Control Board set the standards for water quality and testing. These agencies are responsible for enforcing water quality regulations in areas not meeting safe water standards.

Community water systems are required to:

- Reduce certain contaminants to set levels, in order to protect human health.
- Deliver annual drinking water quality reports called Consumer Confidence Reports (CCRs) to help customers understand what is in their water and to help them make knowledgeable decisions

	<p>about their health and their environment.</p> <p>The CCR identifies:</p> <ul style="list-style-type: none"> • Where your drinking water comes from • What contaminants have been found in it • How contaminant levels compare to national standard • Phone numbers for additional sources of information, including the water system and EPA's Safe Drinking Water Hotline number 1-800-426-4791 <p>Most homeowners will automatically receive a copy of the report each year. People living in apartments or condominiums may not receive a copy directly, but can still access this information on their community's website or by calling the local water department.</p>						
	<p>What contaminants are regulated by the EPA?</p>						
	<p>The EPA has drinking water regulations for more than 90 contaminants. Let's take a look at the most common drinking water contaminants² found today.</p> <table border="1" data-bbox="370 1171 1401 1780"> <thead> <tr> <th data-bbox="370 1171 748 1241">Term</th> <th data-bbox="748 1171 1401 1241">Description</th> </tr> </thead> <tbody> <tr> <td data-bbox="370 1241 748 1640">Arsenic</td> <td data-bbox="748 1241 1401 1640">Arsenic occurs naturally in rocks and soil, but can also come from wood preservatives, fertilizers, pesticides, animal feeding operations, and mining. Historically, it was used in pesticides on cotton and orchards. Possible health effects include skin discoloration and rashes, reduced mental functioning in children, cancer of various types (including bladder, lung, kidney, and liver), and Type 2 Diabetes.</td> </tr> <tr> <td data-bbox="370 1640 748 1780">Asbestos</td> <td data-bbox="748 1640 1401 1780">A mineral fiber that occurs in rock and soil, exposure to asbestos increases your risk of developing lung disease.</td> </tr> </tbody> </table>	Term	Description	Arsenic	Arsenic occurs naturally in rocks and soil, but can also come from wood preservatives, fertilizers, pesticides, animal feeding operations, and mining. Historically, it was used in pesticides on cotton and orchards. Possible health effects include skin discoloration and rashes, reduced mental functioning in children, cancer of various types (including bladder, lung, kidney, and liver), and Type 2 Diabetes.	Asbestos	A mineral fiber that occurs in rock and soil, exposure to asbestos increases your risk of developing lung disease.
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² Terminology definitions taken from www.communitywatercenter.org, <http://www.epa.gov>, www.cdc.gov, and <http://www.sciencedaily.com>

Chlorine	Chlorine is not generally considered a contaminant because it is often intentionally added to water as a disinfectant. However, unsafe exposure to chlorine can lead to negative health effects such as respiratory problems, skin rashes, and dizziness. People are most highly exposed to chlorine from inhaling, rather than drinking. This happens when water containing chlorine is heated to the point where the chlorine becomes a gas and is inhaled.
Cryptosporidium/Giardia	Cryptosporidium and Giardia are “protozoa” which are usually not measured in drinking water. Three classes of biological pathogens in water: viruses, bacteria, protozoa.
Dibromochloropropane (DBCP)	A banned pesticide that was used on grapes and tomatoes, but continues to persist in groundwater to this day. Possible health effects include kidney and liver damage, damage to the male reproductive organs and fertility, and cancer.
E Coli	A large and diverse group of bacteria. Although most strains of <i>E. coli</i> are harmless, others can make you sick. Some kinds of <i>E. coli</i> can cause diarrhea, while others cause urinary tract infections, respiratory illness and pneumonia, and other illnesses.
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.
Nitrate	Nitrates come from the use of fertilizers

		containing nitrogen and from animal and human waste, either from dairies or septic tanks and sewer systems. Possible health effects include Baby Blue Syndrome, birth defects, and pregnancy complications.
	Pathogens	A biological agent that causes disease or illness to its host.
	Phthalate	Phthalates are a group of chemicals used to make plastics more flexible and harder to break. They are often called plasticizers. Some phthalates are used as solvents (dissolving agents) for other materials. They are used in hundreds of products, such as vinyl flooring, adhesives, detergents, lubricating oils, automotive plastics, plastic clothes (raincoats), and personal-care products (soaps, shampoos, hair sprays, and nail polishes).
	123-TCP	123-Trichloropropane (123-TCP) is a chemical compound that is commonly used as an industrial solvent. Exposure by inhalation, skin contact, or ingestion can be harmful to health.
<p>Let's take a closer look at the CCR in our area and see what is being done to provide us with safe drinking water.</p>		
	<p>Activity 3 Research Project – Understanding Where Your Water Comes From</p> <p>Learning outcome: The following activity teaches students how identify where their local drinking water comes from and become familiar with and understand how to interpret the Consumer Confidence Report.</p> <p>Materials needed</p> <p>Copies of the most recent CCR report in your district.</p> <p>Important Note! Not all reports are available online. Contact your local water provider ahead of time to get the most recent Consumer Confidence Report.</p>	

Instructions

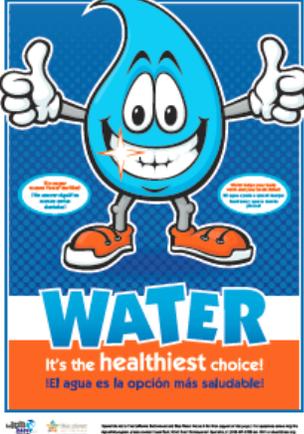
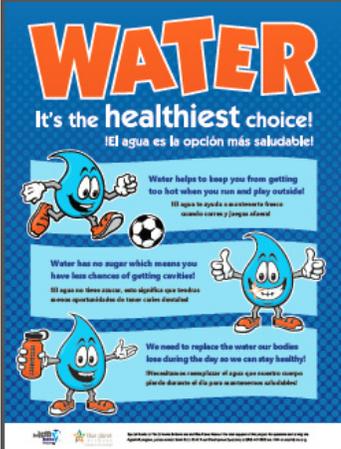
1. Hand out copies of the Consumer Confidence Report to students.
2. Review and discuss with the students the following categories and terms on the report:

Category	Description
Primary contaminants	<p>Primary standards are legally enforceable regulations that drinking water suppliers must follow. Primary standards protect drinking water quality by limiting the levels of specific contaminants that can adversely affect public health and are known or anticipated to occur in water.</p> <p>Example: MCL for copper is 1.3 mg/L (ppm) If a water sample contains 1.4 ppm, it is in Long-term exposure can cause liver and kidney damage.</p>
Secondary contaminants	<p>Secondary contaminants are those that may adversely affect the aesthetic qualities of water, such as odor and appearance. These qualities have no known adverse health effects and thus secondary regulations are not mandatory. However, these qualities do seriously affect acceptance of water by the public, and for that reason compliance with the regulations is strongly recommended.</p> <p>Example: MCL for copper is 1 mg/L (ppm) contains 1.2 ppm, then the water can leave blue-green stains</p>
Unregulated contaminants	<p>EPA collects data for chemicals and microbes that may be present in drinking water, but are not currently subject to EPA drinking water regulations.</p>
Maximum Contaminant	<p>The highest level of a contaminant that is</p>

Level (MCL)	<p>allowed in drinking water is the Maximum Contaminant Level (MCL). Contaminant levels above the MCL numbers indicated are a violation of EPA regulation.</p> <p>It is important to understand that contaminants, as seen in this table, are not all "bad." Contaminants are anything found in your water other than hydrogen and oxygen, which make up water, and can be both healthy and unhealthy, depending on the particular substance and quantity.</p>
Maximum Contaminant Level Goal (MCLG)	The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
Maximum Residual Disinfectant Level (MRDL)	The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
Maximum Residual Disinfectant Level Goal (MRDLG)	The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contamination.
Public Health Goal (PHG)	The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency.
<ol style="list-style-type: none"> 3. Ask students to identify the contaminants in their water. 4. Ask students to compare what is in their water to the Public Health Goal and MCL. Are they are <u>above</u> or <u>below</u> the MCL and Public Health Goal? 5. If there is a contaminant violation that exceeds the allowable limit? Is there an explanation of what the water system plans to do in order to restore safe drinking water? 	

	<p>Does anyone know the process that our water has to go through to be safe for drinking? Have you ever filtered anything?</p>
	<p>There is not a one-type-fits-all kind of water filter that will eliminate every contaminant. It is important to target the contaminants of concern in your area by doing a little research up front.</p> <ul style="list-style-type: none"> Understand what contaminants are in your water. Check your water utility’s CCR. Call your utility provider and ask for a copy of the most current report or visit the EPA’s Safe water Web site to see if it is available online. While your report can tell you what’s going on with the water in your area, only a test of the water coming out of your tap will tell you what you and your family are drinking for sure. Find a state-certified lab to test your water (which will charge a fee) visit the EPA’s Safe water Web site_or call the EPA’s Safe Water Hotline at 800/426-4791. Note: Water from a private well is not regulated at all by the EPA, it is important to get the water tested annually (preferably in late spring when pesticide run off is at its worst) and anytime there you notice a change in your water. Find the best filter type to reduce contaminants levels that will not make you sick. There are a variety of water filters (e.g., plastic pitcher filters and built-in refrigerator filters, faucet and under-the-sink filters, whole-house models, etc.) that combine a variety of media types and treat all of the water in your house. What type you want depends on your needs. For example, if your water regularly tests better than EPA levels, you may just want a filter to remove the chemicals that your local utility uses to treat the water. Filters only last for a certain volume of water. Make sure to monitor and change the filter on a regular basis.
	<p>Activity 4: Create Simple Water Filtration System</p> <p>Learning Outcome: Students will learn how to make a filter that shows how simple rocks, gravel, and sand can clean dirty water and highlight</p>

	<p>how disinfectant chemicals protect us from any remaining bacteria or germs.</p> <p>Materials Needed</p> <p>2-liter soda bottle, at the point where the bottle’s sides begin to slope toward the opening. Save the top to use as a funnel.</p> <p>Filter materials (e.g., cloth of any kind, paper napkins or towels, gravel, sand, and cotton balls)</p> <p>Dirty water made by mixing one liter of water with 1 tablespoon cooking oil, small pieces of paper and Styrofoam, 2 tablespoons of dirt, and 1 tablespoon of salt</p> <p>Instructions</p> <p>Complete the following steps first, then have the students create their own water filter.</p> <ol style="list-style-type: none"> 1. Place the top of the soda bottle upside down on the bottom part of the bottle to use as a funnel. (The top will hold the filter. The bottle will catch the filtered water.) 2. Layer the filter materials inside the top half of the bottle. Think about what each material might remove from the dirty water and in what order you should layer the materials. For an added challenge, use only two of materials to build your filter. 3. Pour the dirty water through the filter. What does the filtered water look like? <p>Explain to the students that the cooking oil, Styrofoam and dirt represent the “contaminants”. In real life, they will be things listed on page <u>14</u>.</p> <ol style="list-style-type: none"> 4. Take the filter apart and look at the different layers. Can you tell what each material removed from the water?
	<p>Can anyone tell me if they have seen the sign that points out the safe water stations on our campus?</p>
	<p>The following information about tap water applies <u>only</u> to any filling station that has the Agua4All logo around campus and the community are safe to drink.</p> <p>Remember, not all schools have safe drinking water. If the tap water does not meet legal water quality standards, it is important to encourage the students to continue to drink bottled water.</p>

	<p>Review Wally Signage and Agua4All logo that points Out “safe” Water Stations (if applicable).</p> <div style="display: flex; justify-content: space-around;">    </div>
	<p>Explain that “Wally the Water Droplet” is the water mascot. Anytime you see Wally’s - <u>Water Stations Safety Sign</u> and the <u>Agua4All logo</u>, this lets you know the water is safe to drink. Simply place your water bottle under the water station and fill it up with cool and tasty water!</p>
	<p>Can anyone tell me why a water bottle saves you money and is better for the environment?</p>

	<p>Important points</p> <p>Review the following points to help students understand why drinking tap water from their water bottle is better for the environment, saves them money, and is just as safe.</p> <ul style="list-style-type: none"> • Bottled water is a drain on the environment: The U.S. public goes through about 50 billion water bottles a year, and most of those plastic containers are not recycled. Transporting the bottles and keeping them cold also burns fossil fuels, which give off greenhouse gases. • Tap water costs about a penny per gallon which works out to be 1/8th of a cent per 16-ounce serving. Let's say you pay \$2 for a 16-ounce bottled water at a convenience store. You are paying 1,600 times more for that \$2 bottled water than for the tap water at home. And remember, if you drink tap water at school, you're drinking it for free. • Drinking tap water instead of one bottled beverage every day can save up to \$350 a year. That's the price of a nice iPad! • Tap water is as clean and safe to drink as bottled water
	<p>Remember, not all schools and student homes have safe drinking water. If the tap water does not meet legal water quality standards, it is important to encourage the students to continue to drink bottled water.</p>
	<p>Activity 5: Be the Change You Want to See</p> <p>Learning Outcome: Students generate ideas to promote drinking tap water to peers and the community.</p> <p>Materials Needed</p> <p>Colored markers, poster board</p> <p>Instructions</p> <ol style="list-style-type: none"> 1. Divide students in teams of 3-4. 2. Ask students to design a poster and include 3 reasons we should choose to drink tap water. Allow for 20 minutes for this activity. 3. Each poster should include the following items: <ul style="list-style-type: none"> • <u>Catchy slogan/message</u>: Come up with a catchy slogan/message that promotes the benefits of drinking tap water.

	<ul style="list-style-type: none">• <u>Visual</u>: Draw a visual that represents your slogan/message.• <u>3 reasons we should drink tap water</u>: Based on what you learned about tap water over this past week, list 3 reasons it is a good idea to drink tap water. <p>4. Use the rest of the class time for students to design and share the posters with the rest of the class.</p>
	<p>Wrap Up</p> <p>Encourage students to bring and use their water bottles at school every day and share the information in the handouts and brochures with their parents.</p>