

STUDENT IMPACT PROJECT IDEAS

Sustainability Ambassadors

Rapidly advancing a more sustainable future



DIRECT WATER USE CONSERVATION

Take action at home, at school or in the community. Communicate your impact to peers, stakeholders, and policy makers to urge collective action. Post your actions [on the map](#).

TOP TEN: If you are especially proud of the impact of your project, and it meets our criteria, we invite you to submit your work to our Annual Top Ten Impact Projects.

Two Ways to Think About How We Consume Water

Direct Water Use: This is the water that comes into your home from a single $\frac{3}{4}$ pipe and is distributed to each fixture, faucet, shower, or toilet, and outside, to your garden hose. The amount of water you **directly** consume for washing, cooking, cleaning, flushing and gardening is measured by a water meter which shows up on your water bill. You pay for what you use. If you use less you pay less, except for a flat rate that supports all of the big pipes and pumps and purification systems that water travels through to get to your house. We all pay for the infrastructure.

Indirect or Virtual Water Use: It takes a lot of water to [produce food](#), to [make energy](#) and to [manufacture consumer products](#). This is what's known as virtual water. Globally, virtual water use is increasing, as more people consume more water-intensive food, electricity and consumer goods, putting increasing pressure on water resources. [Water footprints](#) reveal water use patterns, from the individual level all the way to the national level. A water footprint is measured in terms of the volume of water consumed, evaporated and polluted. There are three corresponding categories:

1. **Blue Water Footprint:** The amount of surface water and groundwater required (evaporated or used directly) to produce an item.
2. **Green Water Footprint:** The amount of rainwater required (evaporated or used directly) to make an item.
3. **Grey Water Footprint:** The amount of freshwater required to dilute the wastewater generated in manufacturing, in order to maintain water quality, as determined by state and local standards.

Examples can be found in the Water Footprint Network's [Product Gallery](#).

World Water Use Comparison

See how your water footprint compares to those in [other countries](#).

PROJECT IDEAS

Shower and Bath

1. **Install a high efficiency showerhead.** Older showerheads flow up to 5 gallons per minute, whereas new WaterSense labeled showerheads flow at 2 gallons per minute or less without sacrificing performance.
2. **Spend less time in the shower.** Try to keep your shower time to five minutes or so.
3. **Turn off the water** when you shave in the shower.
4. **Think of baths as an occasional treat** and stick to showers. The average bath uses 35 to 50 gallons of water. A 10-minute shower with a low-flow showerhead only uses 25 gallons.
5. **Fix that leak!** A showerhead that leaks 10 drips per minute wastes more than 500 gallons per year. That's 60 loads of dishes in your dishwasher! Grab some pipe tape and a wrench and make sure that connection is tight.

Toilets

1. **Install a WaterSense labeled toilet.** Flushing is the biggest water hog in the house. Older, conventional toilets can use 5 to 7 gallons per flush, but new high efficiency models use as little as 0.8 gallons per flush. Since the average person flushes five times a day, the gallons can really add up.
2. **Check your toilets annually for a leak.** Place dye or food coloring into the tank. If color appears in the bowl without flushing, there's a leak that should be repaired. A slow leak can waste **30 gallons a day** while keeping you oblivious to the problem. A medium leak, on the other hand, is more noticeable and will go through roughly **250 gallons and a day**. If your toilet is leaking, the cause is often an old, faulty toilet flapper. Over time, this inexpensive rubber part decays, or minerals build up on it. It's usually best to replace the whole rubber flapper—a relatively easy, inexpensive do-it-yourself project that pays for itself in no time. [Learn more from WaterSense - Fix a Leak Week Facts](#)

Bathroom Sink

1. **Turn off the water** when you brush your teeth.
2. **Install high efficiency [faucet aerators](#)** – you can save gallons of water (and money) each time you use the tap. Conventional faucets flow as high as 3 gallons per minute, but low-flow faucets flow at 1.5 gallons per minute.

3. **Fix those leaky faucets.** That constant drip is more than just annoying; it's also a huge waste of water. You can lose more than 20 gallons of water a day from a single drippy faucet! Check for leaks by examining the washers and gaskets for wear and replacing them if necessary.

Dishwashing

1. **Use a dishwasher.** They almost always use less water than washing dishes by hand, especially with water- and energy-efficient models (just make sure to only run the dishwasher when it's full). Hand washing one load of dishes can use 20 gallons of water, whereas water- and energy-efficient dishwashers use as little as 4.5 gallons. Over time, that's a big difference!
2. **Learn more about [ENERGY STAR](#)** water and energy-efficient dishwashers.
3. **Use the garbage disposal less** or not at all. Or even better, compost those scraps. Learn more about [kitchen composting](#).
4. **When you do wash dishes by hand,** try using a little water to get your sponge soapy and wet, then turning off the faucet until you're ready to rinse a bunch of dishes at once. Better yet, plug the sink or get a tub to wash dishes in so you don't need to let the water run.

Laundry

1. **Top Loading vs. Front Loading Washers:** Conventional top-loading washing machines with center post agitators use about 40 gallons of water per load. Compare that to front-loading machines that use somewhere in the neighborhood of 20 gallons. Remember, that 40 gallons will require twice the energy to heat, too, which is one of the key costs of operating a washing machine. Front-loaders can clean clothes with less water because they use gravity to create agitation by rotating the drum to cycle the clothes above the waterline and drop them back into the water -- again and again. With the aid of gravity, front-loaders can get clothes clean using half the water.
2. **Use your washing machine** only when it's full.
3. **Choose an [ENERGY STAR](#) water- and energy-efficient** model if you're in the market for a new washer. It will save you gallons of water each load (and save energy too).
4. **Wash your clothes less.** You don't need to wash most of your clothes as often as you probably do. Here are [some ideas](#) to help you cut back one of the biggest water users in the home.
5. **Dry your clothes on a drying rack or a clothesline.** When you save energy, you also save water because power plants use a lot of water to produce [electricity](#).

Cooking

1. **Don't let your faucet needlessly run** while you're cooking. You're letting good water (as well as energy and money) run down the drain.
2. **Install a low-flow faucet on your sink.** Conventional faucets flow at around 5 gallons per minute, while low-flow faucets flow at 1.5 gallons per minute.
3. **Wash vegetables and fruits** in a large bowl or tub of water and scrub them with a vegetable brush instead of using your faucet as a power-washer.
4. **Don't use water to defrost frozen foods.** Instead, leave them in the fridge overnight.
5. **Boil food in as little water as possible** to save water and cooking fuel. You just need enough to submerge your pasta and potatoes. Plus, with less water you keep more flavor and nutrients in your veggies.
6. **Put your vegetable steamer on top** of the rice, potatoes or pasta you're boiling to steam the veggies. You'll save water and have fewer dishes to wash later.
7. **Keep a bucket or pitcher in your kitchen** to collect leftover drinking water, water used to rinse vegetables and to boil food. When it's time to water your plants or garden, use this "recycled" water before you fill up your watering can from the tap.

Lawns and Gardens

1. **Minimize or eliminate your lawn watering.** Plant native species that don't require additional watering. Learn more about [Natural Yard Care](#)
2. **Water your lawn when it's cooler** – in the early morning or late evening – to reduce water loss from evaporation.
3. **Don't water the lawn on windy days** because much of it will be lost to evaporation.
4. **Set up your sprinklers** so they're not spraying the sidewalk or driveway. Not only does that squander water supplies, it can also wash polluting fertilizers and pesticides into sewer systems.
5. **Turn your sprinklers off** when rain is expected and set up a system with rain/moisture sensors if you have automatic sprinklers.

6. **Use a [drip irrigation system](#)** instead of a hose or sprinkler to water your garden, and hand-water your lawn or garden instead of using sprinklers when possible – you could cut your water use in half.
7. Analyze the current water use of your irrigation system at school. Identify and make recommendations to improve water use efficiencies. Report to your School District Facilities Department.
8. **Set lawn mower blades** one notch higher because longer grass equals less evaporation.
9. **Don't let the hose run.** Buy a squeeze (pistol grip) nozzle for your hose so you don't have to use the tap to start and stop the flow.
10. **Check your in-ground irrigation system** each spring before you turn it on, to make sure there's no damage from frost or freezing during the winter. An irrigation system with a leak as small as 1/32 inch in diameter (about the thickness of a dime) can waste about 6,300 gallons of water (and a lot of money) each month.
11. **Check your water meter.** Pick a time when no one needs to use the water for a while and check your water meter before and after a set time period (15 minutes to a couple of hours). If the meter does not read exactly the same, you probably have a leak.

Car Washing

1. **Use car washes that conserve** and recycle their wash water.
2. **Use self-service car washes.** They use the least amount of water because they use high-pressure hoses that have a pistol grip and can be turned on and off easily.
3. **Don't leave the hose running** when you wash your vehicle. Purchase a squeeze (pistol grip) nozzle for your hose so you don't have to turn the tap to start and stop the flow.

Rain Harvesting

1. **Redirect gutter downspouts** from stormwater pipes to your lawn or garden.
2. **Set up a rain barrel** under a gutter outside your house. On average, you can catch 4 gallons of water a day (more in really rainy areas) to use for watering the lawn, washing the car, etc. Just don't drink it, and make sure to keep it covered with a fine-mesh screen, so it doesn't breed mosquitoes.
3. **Cisterns are bigger!** Design a system for harvesting rainwater from the roof of your home, multifamily complex, or school and repurposing it to increase water use efficiency, especially

for toilet flushing and irrigation outside. To support the water supply needs of a typical house you would need a cistern that can hold 5,000-10,000 gallons. [Rainwater Harvesting 101](#)
Here are some general guidelines for calculating rooftop area for rainwater collection.

- The catchment area is equal to the length times width of the guttered area.
- One inch of rain falling on one square foot of rooftop will produce 0.6233 gallons of water or approximately 600 gallons per 1,000 square feet of roof.
- 35-40 inches of rain per year in greater King County.
- Assume that the system will lose 10-25 percent of the total rainfall due to evaporation, initial wetting of the collection material, and inefficiencies in the collection process.
- Precipitation loss is the least with metal roof surfaces. Loss is less with asphalt composition shingles, and greatest with wood shakes.

Engineering A Net Zero Water Building

1. Design a net zero water home, multifamily complex, school or office building. Here are some useful starting places: [Ideal Net Zero Water Building](#) | [New Construction Goal: Net Zero](#) | [Path to Newt Zero Water](#) | [Toward Net Zero Water](#)