



Home & Environment

Saving Water at Home

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Many may consider Kentucky a “water-rich” state with over 90,000 miles of streams and rivers, thousands of ponds, lakes, reservoirs, and wetlands, and 40 to 50 inches of precipitation per year. So, it’s not surprising that water, one of our most valuable natural resources, is often taken for granted. For many Kentuckians, fresh water is no more than a turn of the faucet, the push of a button, or the twist of a cap away. Yet with increased water consumption, managing the supply and availability of water is a major issue in the U.S. and the world. Over the past fifty years, water consumption has tripled. In the last five years, almost every region in the U.S. has dealt with water shortages. At least 36 states are predicting local, regional, or statewide water shortages by the year 2013, even under non-drought conditions.

No new water

The water we use today is the same water our ancestors used thousands of years ago and will be the same water future generations will use in years to come. There is no new water. Water travels from the air through condensation to the earth as precipitation and back to the atmosphere by evaporation (Figure 1). Only about one-third of the precipitation that falls on the landscape flows in our rivers, streams, and lakes. Evaporation and plant transpiration of water back to the atmosphere accounts for the other two-thirds. Water conservation is not about saving water but about having sufficient clean water at any given time and place to meet our needs.

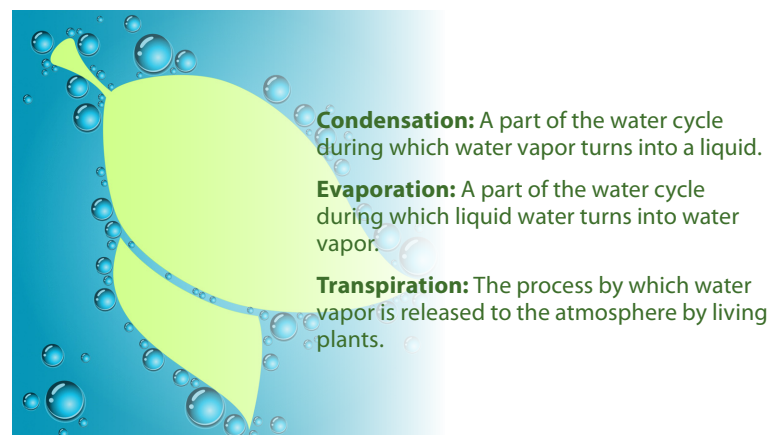
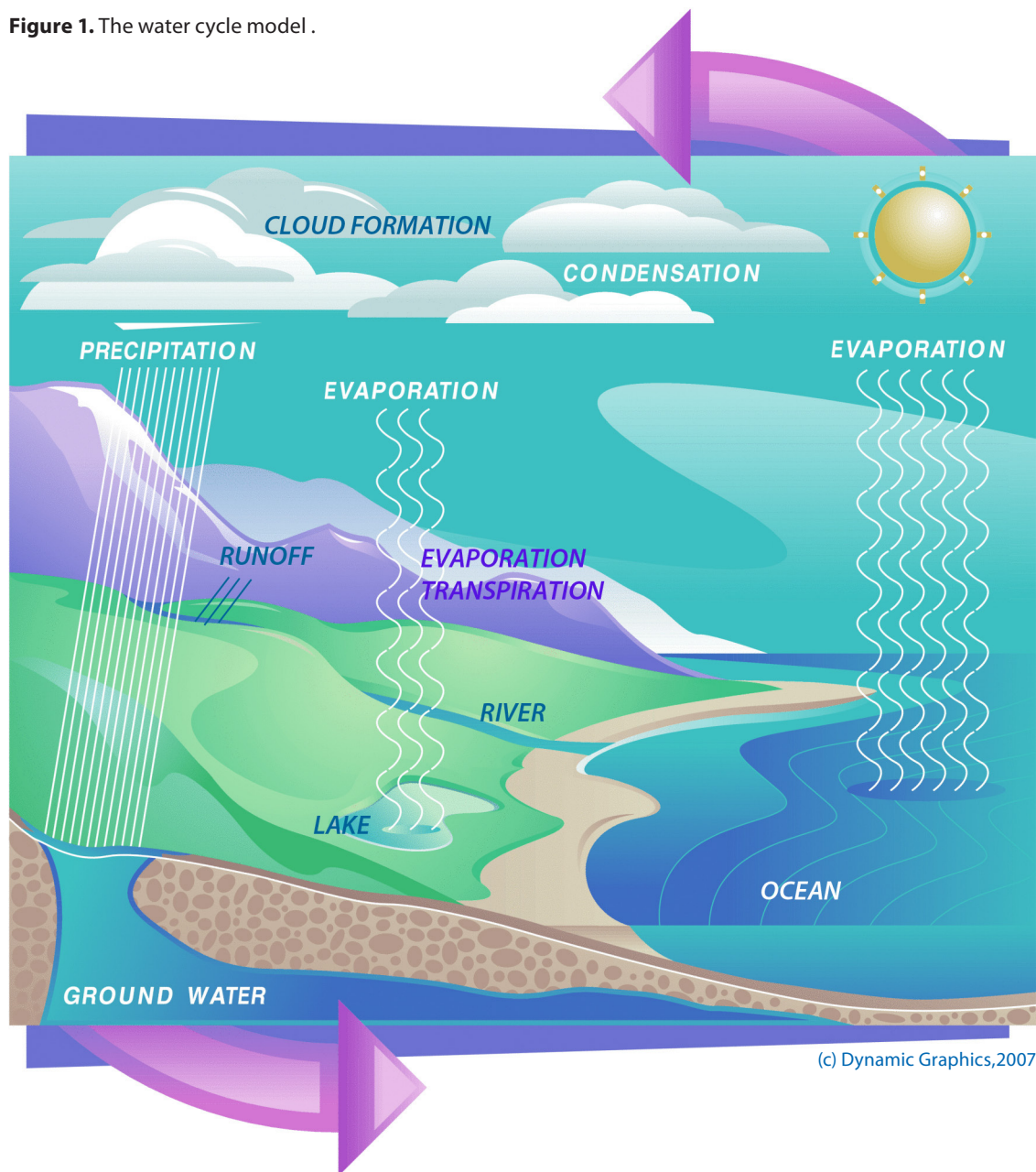


Figure 1. The water cycle model .



Letting your faucet run for 5 minutes uses about as much energy as letting a 60-watt light bulb run for 14 hours.
—WaterSense

How is Kentucky doing?

In 2005, approximately 4,330 million gallons of water were withdrawn per day (mgal/d) in Kentucky. Table 1 lists the total water withdrawn in 2005 in Kentucky by water use. Public supply water is used for domestic, commercial, and industrial purposes, public services (pools, parks, firefighting, water and wastewater treatment, and municipal buildings) and system losses (leaks, flushing, and tower maintenance). Domestic use includes indoor

residence use (drinking, food preparation, washing clothes, and flushing toilets) and outdoor residence use (watering lawns and gardens, and washing vehicles) (See Figure 2). Of the 558 Mgal/d of water withdrawn for public supply, 243 Mgal/d was withdrawn for domestic use. Thus, in 2005, total water withdrawn for domestic use in Kentucky was approximately 278 Mgal/d or 67 gallons per person per day.

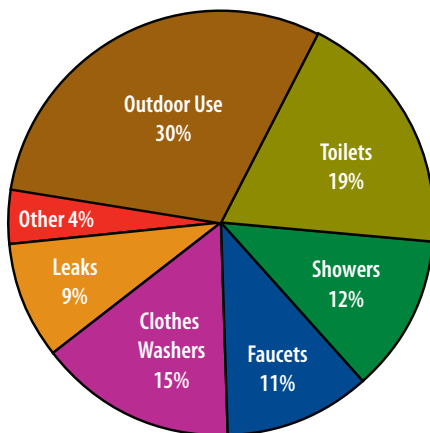
Table 1. Water withdrawn in Kentucky by water use, 2005

Purpose	Amount of Water (Mgal/d*)
Aquaculture	20.4
Domestic	34.8
Industrial	186
Irrigation	18.9
Livestock	45.9
Mining	36.6
Public Supply**	558
Thermoelectric Power	3,430
Total Water Withdrawn	4,330.6

* Mgal/d=Million gallons per day

** Public supply is water withdrawn by public and private water suppliers that distribute water to a minimum of 25 people or that have no less than 15 connections.

Figure 2. Water use in the United States



Source: <http://epa.gov/watersense/outdoor/landscaping.html>

Why conserve water?

Using less water can better prepare us for water shortages and drought situations. The Kentucky Energy and Environmental Cabinet has developed a drought notification system. The cabinet will announce a water shortage watch for a geographical area when conditions could lead to a water shortage, and they will issue a water shortage warning when one or more water supply systems in an area is currently in a water shortage emergency.

Conserving water conserves energy. Obtaining water from streams, rivers, aquifers, and other water bodies and transporting it to water treatment facilities requires large amounts of energy. At water treatment facilities, energy is needed to pump and process water and to distribute water to consumers. Further energy is used by consumers to treat water with softeners and filters, circulate and pressurize water with pumps and irrigation systems, and heat and cool water. Then the spent water or wastewater consumes more energy as it is pumped to treatment plants, where it is aerated and filtered. By conserving water, we decrease our demand for energy-intensive systems that obtain, treat, and distribute water. Simply put, by conserving water we save energy.

Conserving water saves money. Each year the average household spends as much as \$500 on water and sewer bills. With more efficient water use, around \$170 per year could be saved.

Conserving water at home and in the landscape

The following are simple steps to save water at home and in the landscape during day-to-day activities and in emergencies situations.

Bathroom

Everyday Tips

- Turn the water off when brushing your teeth, washing your hands or face, or shaving.
- When shaving, fill the basin with water and dip your razor in the basin as needed.
- Flush the toilet only when necessary. Do not use the toilet as a wastebasket. Throw tissues, insects, and other trash in the garbage not the toilet.
- When taking a bath, plug the drain before turning on the faucet. As the tub fills, adjust the temperature.
- Use less than 5 inches of water when taking a bath.
- Install low-flow showerheads and aerators to restrict the flow of water.
- While waiting for water to get warm when taking a shower, catch the water in a pitcher or bucket, and use to water plants.
- Save the water you use when bathing or showering to flush the toilet or water non-edible landscape plants.
- Limit showers to 3 to 4 minutes.
- Check your toilet(s) and faucet(s) for leaks.
- Reuse bath towels at home or in hotels.
- Replace old toilets (prior to 1993) with new WaterSense labeled toilets.
- When possible, purchase products, such as toilets, faucets, and faucet accessories, that have the WaterSense label.



The WaterSense program is sponsored by the U.S. Environmental Protection Agency to promote products such as toilets, showerheads, faucets, and faucet accessories that are water-efficient and high-performing. The WaterSense label indicates that a product is 20 percent more water efficient than average products in that category. Water Sense-labeled products can be found at home improvement stores. For more information, visit the WaterSense website at www.epa.gov/watersense/.



Low-Flow Showerheads

Aerating vs. Non-aerating Showerheads

An aerating low-flow showerhead mixes air into the water stream maintaining a steady pressure and providing an even, full shower spray. However, the temperature of the water may cool down slightly towards the floor of the shower since air is mixed with the water. A non-aerating low-flow showerhead does not mix air into the water stream; rather the water flow pulses, providing a strong, massaging type spray that maintains temperature.

During Emergencies

- Take “navy showers.” Turn the water on to get wet. Turn the water off. Lather with soap and shampoo. Turn the water on to rinse.
- Use a pan of water and a sponge or cloth to clean up in place of a bath or shower.

Kitchen

Everyday Tips

- Dispose of fruit and vegetable scraps in a compost pile instead of a kitchen garbage disposal. Garbage disposals use a lot of water and can create septic problems.
- Thaw meat and other frozen foods in the refrigerator or use the defrost setting on your microwave instead of using running water.
- Scrape, rather than rinse, dishes before putting into the dishwasher.
- Set your dishwasher to the water saving or short cycle (check manufacturer’s instructions). Only run the dishwasher with a full load.
- Keep a pitcher of water in the refrigerator for drinking instead of running water and waiting for it to get cold. Forgo bottled water.
- While waiting for the water to get warm, catch the water in the sink or a pitcher and use for cleaning vegetables, washing or rinsing dishes, watering plants, or cleaning.
- Repair leaky faucets.

- Don’t wash or rinse dishes under a running faucet. Instead use a pan or sink of water.

During Emergencies

- Cook food in as little water as possible to save water and prevent nutrient loss.
- Use disposable plates, cups, and utensils to reduce the need to wash dishes.
- Save the gray water from rinsing dishes to use when flushing the toilet or to water non-edible landscape plants.

Laundry

Everyday Tips

- Wash full loads of clothes. If you must wash smaller loads, adjust the water-level control to the appropriate setting.
- Use cold water whenever possible to wash clothes.
- Read the manufacturer’s instructions for your washer. Some cycles, such as the permanent press cycle, may use more water.
- Re-wear clothes when possible.
- Check your washer’s hoses for cracks and leaks regularly.
- Use good laundering techniques. To avoid rewashing or re-rinsing, pre-treat stains, sort clothes, and follow product recommendations (such as stain removers, detergents, bleach, fabric softeners).

Gray water is household waste water from baths, showers, and sinks. It can be reused for toilet flushing or to water non-edible landscape plants. Gray water is of lesser quality than tap water and can contain bacteria and other pathogens; do not keep it for longer than 24 hours.

Gray water that contains detergents or bleach, including dishwater and water used for laundry purposes, should not be used on landscape plants because chemicals in the products can adversely affect soil chemistry and root growth. Rinse water collected from washing dishes or clothes may be used only if the amount of detergent or bleach present is minimal. Bath water is generally acceptable for irrigation purposes because soaps are typically less of a problem than detergents. Alternating the use of gray water with clean water will decrease the risk of any long-term effects of the use of gray water.



ENERGY STAR is a program sponsored by the U.S. Environmental Protection Agency and the U.S. Department of Energy. When you see the ENERGY STAR logo on a product, you know that it is an energy-efficient product. The ENERGY STAR logo can be found on a wide variety of products including appliances, computers and electronics, heating and cooling equipment, lighting and fans, and even plumbing equipment. For more information about ENERGY STAR, visit their website at <http://www.energystar.gov/>.

- When replacing your old washer, look for a new, higher efficiency ENERGY STAR clothes washer. Visit www.energystar.gov for information on stores in your area.

During Emergencies

- Save the water you use when rinsing clothes to flush the toilet.

Equipment and Appliances

Everyday Tips

- Read the manufacturer's instructions for your appliances. Washing machines and dishwashers often have cycles that use less water.
- Install low-flow toilets, showerheads, and faucets. Visit <http://www.epa.gov/watersense> for information on low-flow products.
- Insulate your water heater tank and hot water pipes.
- Lower the temperature on your water heater. A savings of 3 to 5 percent in energy costs can be seen for each 10°F reduction in water temperature.
- If you plan to be traveling for 3 or more days, adjust the thermostat on your water heater to the lowest setting or turn off the water heater. (Check manufacturer's instructions prior to turning off the water heater.)
- When replacing an old appliance or product, look for a new, higher efficiency ENERGY STAR or WaterSense product. Visit www.energystar.gov or <http://www.epa.gov/watersense> for information on stores in your area.

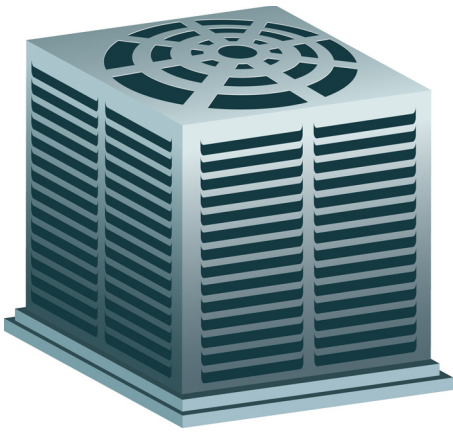
- Consider purchasing a water alarm system for sump pumps, dishwashers, and washing machines to alert you if a major water leak should occur.

Landscape and Garden

Everyday Tips

- To avoid water loss to evaporation, water your plants early in the morning.
- Weed your garden regularly to eliminate competition for water.
- Mulch plants, shrubs, and trees to retain moisture. Leaves and lawn clippings can be used as an alternative to purchasing mulch.
- In your garden, group together vegetables that need more water. This will allow for more efficient watering.
- Replace high-water-use plants with native or drought-tolerant plants. Native plants have adapted to local conditions and can survive seasonal temperature extremes, such as periods of drought.
- When purchasing an irrigation system, investigate which system is best for you and your lawn and garden needs. Micro-irrigation systems for gardens, trees, and shrubs irrigate slowly and decrease evaporation, runoff, and overspray.
- When planning to irrigate, take into account soil type, sun or shade exposure, the type of sprinkler, and time of day.

Water treatment devices improve the smell, taste, color, or quality of drinking water. Reverse osmosis (RO) is a water treatment device used to remove dissolved and suspended impurities from water. A major disadvantage of RO is that it uses large amounts of water, generally recovering only 5 to 15 percent of the water entering the system. A RO device dispensing 5 gallons of treated water per day may use anywhere between 20 to 100 gallons of water per day, which is discharged to the home's septic or sewer system. This amount is dependent upon the model. The RO discharge can be collected and used as a source of gray water. When purchasing a water treatment device compare and contrast the primary use and advantages and disadvantages of the device.



Use condensation from air conditioning (AC) units and dehumidifiers as a source of gray water. A window AC unit can collect 1 to 2 gallons of condensate water per day, whereas a central AC unit for an entire home can collect 5 to 20 gallons of condensate water per day. The condensate produced can range from 3 to 10 gallons of water per day for every 1,000 square feet of air-conditioned space and may vary depending on the local climate. Dehumidifiers in basements may produce up to 8 gallons of condensate per day. Depending on the location of the AC units, this water may be easily captured, stored, and used as a source of gray water.

Conserving water saves money.

Each year the average household spends as much as \$500 on water and sewer bills. With more efficient water use, \$170 could be saved each year.

- Inspect irrigation equipment once a month for leaks, broken or clogged heads, or other problems.
- Reduce overwatering by decreasing each irrigation cycle by 2 minutes and eliminating one entire irrigation cycle per week. Adjust sprinklers to eliminate overspray on sidewalks, driveways, and other impervious surfaces.
- Invest in a rain shutoff switch to turn off your irrigation system in wet weather.
- Raise the mowing height of your lawn mower. This promotes root growth, decreases heat stress, and helps your lawn stay more hydrated.

During Emergencies

- Water young trees and shrubs first, as they need the most water and are more expensive to replace.
- Water non-edible landscape plants with gray water.

Other Outdoor Uses

Everyday Tips

- When giving your pet(s) fresh water, use the old water for non-edible plants.
- For outdoor play, use a small pool instead of a hose or sprinkler.
- Check hoses and spigots for leaks regularly.
- Clean sidewalks, patios, and driveways with a broom instead of a hose.
- Install a rain barrel to collect rainwater to use on your lawn or garden.
- Instead of hand washing vehicles, use a commercial carwash that recycles water.
- Repair leaks around pool or spa pumps. Install a pool or spa cover to reduce evaporation.
- When using a water hose, use a

- nozzle to turn off the water when you are not using it.
- Winterize outdoor spigots.
- Disconnect outdoor water hoses in winter.

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