

BUILD YOUR OWN



**REDUCE
POLLUTION +
BUILD
RESILIENCE**

RAIN BARREL



BUILD YOUR OWN RAINWATER BARREL

WHAT IS IT?

This guide shows you how to build a rain barrel—a simple, cost-effective system that collects and stores rainwater from your roof to conserve water, reduce runoff, and sustainably nourish your plants. They're ideal for homeowners, renters with outdoor spaces and urban gardeners.

HOW TO USE IT

- Feed your garden and plants with untreated clean water.
- Reduce runoff that pollutes local waterways and ecosystems.
- Fight climate change by reducing your water footprint and energy use.
- Get water to hard-to-reach places.

BASIC
TOOLS

2-HOUR
PROJECT

BEGINNER-
FRIENDLY

WHY DO WE NEED IT?

Water is one of our most precious resources. Modern water treatment systems are energy-intensive, expensive, and often wasteful. Stormwater runoff can overwhelm drainage systems, carrying pollutants into local rivers and ecosystems. Collecting rainwater helps us make the most of what nature provides, reducing reliance on municipal water and protecting our environment.

A simple rain barrel can turn stormwater into a steady supply for gardens, houseplants, and even outdoor cleaning—saving water and money in the process.



CHANGING CLIMATE

Climate change is shifting how and when we get water, making it more important than ever to store and use it wisely. With unpredictable weather and increasing droughts, water isn't always there when we need it. Heavy rains overwhelm city drainage systems, leading to flooding and pollution. Droughts leave us without this vital resource.

Putting practical tools like rain barrels in place can help lessen the burden on the human systems woven into our ecological landscape, reducing our impact.

HOW DOES IT HELP?

By installing a rain barrel, you're directly addressing these challenges. You'll reduce your reliance on treated municipal water, prevent runoff pollution, create a backup water source for your garden during dry spells and can water hard-to-reach places.

Rain barrels contribute to a cleaner, greener future. They work to:

- **Conserve Resources:** Save hundreds of gallons of water annually.
- **Improve Ecosystems:** Minimize stormwater runoff and pollution.
- **Foster Resilience:** Adapt to climate change by managing water usage.



WHO IS IT FOR?

Rain barrels are for anyone who believes in taking small, meaningful steps toward living more ecologically: gardeners who want to nurture their plants without draining local water supplies, renters and homeowners looking to reduce their ecological impact, and community spaces that care about resilience and resourcefulness. It also can be more convenient than running a hose, making water more accessible where needed.

WHAT DO YOU NEED?

Sourcing Tips: Bring this list to your local hardware store for help gathering all the right materials. For barrels, check local hardware stores, Facebook Marketplace, or recycling centers. Pick a *food-grade container* that previously held non-toxic materials.

Local libraries and hardware stores rent tools. If you're based in the Hudson Valley, you can join **Toolshed**, a Hudson-based non-profit that runs a sliding-scale tool lending library. Memberships start at \$5/year. Learn more at www.tool-shed.org.

MATERIALS

- 55-gallon food-grade plastic barrel
- $\frac{3}{4}$ " uniseal
- Spigot ($\frac{3}{4}$ -inch hose bib)
- $\frac{3}{4}$ " PVC to FIPT fitting
- $\frac{3}{4}$ " PVC schedule 40 pipe, 4-5" (2)
- PVC glue + primer, 1 each (usually sold as a pack)
- Teflon (plumber's) tape
- Pre-filter screen with fine mesh (to keep out debris and bugs)
- A downspout diverter or flexible downspout extender
- Concrete blocks or a sturdy platform (to elevate the barrel)



TOOLS

- Drill
- Jigsaw
- 0.75" and 1.25" Hole saw bits
- Tape measure
- Sharpie marker
- Dishsoap
- Latex gloves



HOW TO MAKE IT!

Follow these simple instructions to make your own rain barrel at home. Before you start, clean your barrel using dish soap and rinse it, removing any build-up or residue.

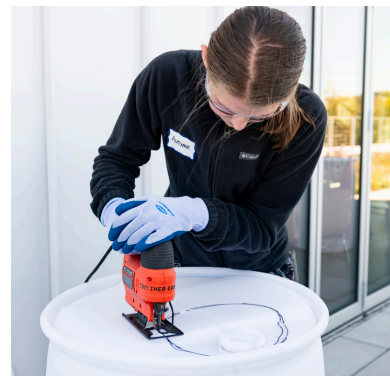
1. PREP YOUR BARREL FOR INFLOW & OUTFLOW

- Drill a hole ~3–5" from the bottom for your spigot with the 3/4" hole saw bit.
- Drill a hole ~3–4" from the top of the barrel using a 1.25" hole saw bit.



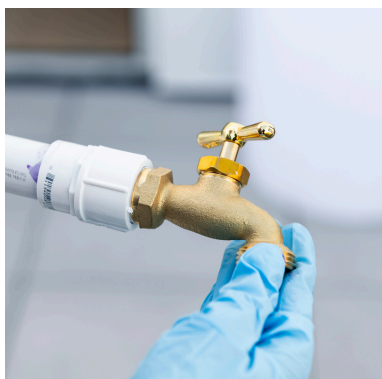
2. INSTALL THE FILTER

- Trace the outline of the smallest part of your screen on the top of the barrel using a Sharpie. There should be a lip that extends beyond the edge of the hole.
- Cut a hole for the screen on the top of the barrel lid: drill a 1.25" hole just inside your outline, then use your jigsaw to cut out the rest of the circle.
- Fit your filter into the top hole; the lip of the filter should hold it in place.



3. INSTALL THE SPIGOT

- Prime and apply adhesive around the end of the $\frac{3}{4}$ " pipe.
- Screw on the $\frac{3}{4}$ " PVC to FIPT fitting onto the PVC pipe (right away, while adhesive is wet).
- Wrap the spigot threads with Teflon tape to ensure a watertight seal.
- Screw the spigot onto the threaded fitting.
- Push the $\frac{3}{4}$ " uniseal into the hole near the bottom of the barrel (*Turn the barrel sideways and straddle for better leverage*).
- Insert the spigot into the uniseal hole, pushing the pipe into the barrel.



4. SET UP OVERFLOW

- For outflow, attach a short piece of hose or PVC pipe to the upper 1.25" hole to direct overflow water away from your foundation or into another barrel.

5. MODIFY DOWNSPOUT

Decide how you want to direct rainwater in:

- **Downspout diverter:** This attaches to your existing gutter and channels water into the barrel while preventing overflow.
- **Downspout extender:** This flexible tube allows you to position the barrel under your existing downspout.

If necessary, use a hacksaw to cut the downspout to the appropriate height.

6. ELEVATE BARREL

Water is heavy! One 55-gallon water barrel can weigh 400 lbs. Stabilize your barrel:

- Place the barrel on concrete blocks, a wooden stand, or bricks. This improves water pressure and makes it easier to access.
- Ensure it is stable and level.



INSTALLATION TIPS

- Clean out your barrel to remove any plastic particles left from drilling.
- Test the spigot to ensure it works properly.
- Check for leaks and seal as needed.
- Adjust the downspout to flow neatly into the barrel.



MAINTENANCE

- Use collected rainwater for plants, gardens, or cleaning.
 - Regularly clean the barrel and screen to prevent algae and debris buildup.
 - Drain and store the barrel during freezing weather to avoid damage.
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TESTIMONIALS

To show just how easy and accessible this project is, we hosted a free workshop to teach local youth from the Hudson, NY community how to build their own barrels. Here's what they had to say:



Rain barrels make me feel more connected to my house, my garden, and the earth. This small act has really shifted my mindset to a more ecological place.

- “A lot of people don't realize how much water is wasted or that there's not a lot of clean water, so it is important to save it.” – Marilyn, 15
- “I didn't know how to use tools before the workshop. The instructors were helpful, they walked us through every step and assisted when we needed it.” – Ayesha, 16
- “It was refreshing to learn about environmental actions I can take. I was happy to be a part of it!” – Harmony, 15

ECOLOGICAL RESOURCES

Sharing resources that help us learn, access tools, build knowledge, and develop community best practices are vital tools for living ecologically. Here are some of our favorites related to sustainable water management:

- **Natural Resources Conservation Service (NRCS)**: Support for landowners and farmers on water conservation practices.
- **National Resources Defense Council (NRDC) Water Program**: Legal and policy advocacy for water conservation and clean drinking water.
- **Home Water Works**: Calculate your water footprint to reduce usage.
- **Greywater Action**: Guides on reusing household water for irrigation.



RECOMMENDED READING

Head to your local library and check out these books on water conservation:

- ***The Water-Wise Home***, Laura Allen: DIY guide to rainwater harvesting and greywater
 - ***The Big Thirst***, Charles Fishman: Deep dive into the future of water use
 - ***When the Rivers Run Dry: Water—The Defining Crisis of the 21st Century***, Fred Pearce: Explores global water shortages and their impacts.
 - ***Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge, and the Teachings of Plants***, Robin Wall Kimmerer: A poetic and profound book on reciprocity, sustainability, and our relationship with nature.
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Our Guidebook series shares best practices, how-to's, and accessible explanations of tools that help our communities flourish.

ACKNOWLEDGEMENTS

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