

Emergency Essentials Prep School



Water Storage 101





Water Storage 101

Introduction: Why Store Water?

Water is one of the most important elements of human survival. We use water every day in almost all aspects of living. During an emergency like a natural disaster, water might be inaccessible or contaminated. So, it's important to store enough clean water to meet the daily needs of everyone in the family.

1. How Much Water to Store

Store at least one gallon per person per day, more if possible. This includes half a gallon (2 quarts) for drinking and half a gallon for cooking and light sanitation (like brushing teeth, washing hands, taking a sponge bath, and so on). You should store at least two weeks' worth of water for each person (14 gallons, or more if possible). In an emergency, it's most important to stay hydrated, but you will want to stay as clean as possible for health reasons. You may also need water to cook your food storage. It's important to determine the particular water needs of your own family.

To give you some perspective, the average family uses almost 70 gallons of water per person, per day. This includes bathing, washing clothes and dishes, using faucets, flushing the toilet, and other uses.

For a family of four, that adds up to 280 gallons a day. If the water going to your house was shut off or contaminated, you'd have to rely on your water storage to meet your family's needs.

Water Storage Heavy Lifting		
	Empty	Full
55-Gallon Barrel	23.5 lbs.	484 lbs.
30-Gallon Barrel	14 lbs.	264 lbs.
15-Gallon Barrel	7.5 lbs.	133 lbs.

Terms to Know

Microorganisms are organisms that can't be seen individually without a microscope. These include protozoa, bacteria, viruses, algae, molds, and fungi. Certain microorganisms can cause sickness or even death.

Polyethylene is a common type of plastic, often identified by the abbreviation PE. This plastic

can be made in different molecular densities that offer varying degrees of durability.

A **Bung** is a type of hole plug like a cork or rubber stopper. In the case of a water barrel, the bung is a cap with the threads on the outside (as opposed to a jar lid with the threading on the inside) that screws down into a hole until it is flush with the top of the barrel.

A **Bung Wrench** is a special tool used to loosen and tighten a bung.

*It's important to use blue barrels, since different colors have different meanings (red means fuel) and they block more light than clear or white containers.

2. How to Store Water

To store water long term, the water must first be clean and free of **microorganisms**. In most places, municipal water is clean enough to store right out of the tap. It's best to store water in both stationary and portable containers. For stationary storage, water should be kept in heavy-duty plastic containers.

Your portable storage can be stored in smaller containers or purchased already packaged for storage. All containers should be new (unused), FDA-approved, and BPA-free. Make sure the container is tightly closed and free of cracks or holes. The container should stay sealed and kept out of sunlight. If you do all this, the water will store indefinitely.

Types of containers:

- 55-, 30-, and 15-gallon **Polyethylene** (PE) water barrels. These blue-colored barrels* are durable and fairly lightweight when empty.

Instead of spouts, these containers have holes on the top sealed with threaded caps called **bungs** or bung nuts. A bung nut generally requires a **bung wrench** to open and close. To

Water will store indefinitely if:

- 1) the water is free of microorganisms
- 2) the water is kept in a food-grade container made of an FDA approved resin
- 3) the container is clean and tightly closed
- 4) the container is kept sealed and away from sunlight



get the water out, you'll need a **hand pump** or **siphon hose**.

- 5-7 gallon Polyethylene (PE) water jugs. These containers have handles, making them more portable than water barrels—but they still weigh about 44-60 pounds when full. These jugs have a screw-on cap and can have an optional pour spout. Darker containers are better for reducing your water's exposure to light.
- 5-gallon **metallized water bag** (in box). These silver-colored bags block out sunlight and can be stacked up to three high if placed in a box. Because these bags can be punctured, it's best to store them in boxes.
- Pre-packaged portable water. Water packaged specifically for long-term storage comes in various types of containers. These may include cans, pouches, and juice box type containers. They range in volume from 4 to 33 ounces.

Gallon-sized milk jugs shouldn't be used for long-term storage as they can break easily.

Bottled water works well for short term storage (i.e., in a three-day emergency kit), but are not recommended for long term.

3. Where to Store Water

Where you store your emergency water will depend on the size of your living space, the size of the containers you use, and how you intend to use your water. Someone living in an apartment may not have as much space for water storage as someone in a large house. A family may be able to store several 55-gallon barrels in their basement, but using that water in the kitchen or bathroom would require transferring the water to smaller containers to carry it upstairs. Outside storage should be used as a last

resort. Let's look at a couple of scenarios:

Jack and Monica live in a small one-bedroom apartment. They want to store one month's worth of water with the intention to use about two gallons each per day. They decide 60 gallons is enough for their needs. They have no extra closet space, no garage, and very little available floor space. They buy four 15 gallon barrels and store them in their bedroom between their bed and the wall. They have a little less space, but feel peace of mind knowing they have some emergency water.

Jesse and Sandra live in a large five bedroom house with a full basement. They have eight children, ranging in age from one to 16 years old. They decide to store one gallon per person per day for one year. That's 3,650 gallons. They buy 67 55-gallon barrels, giving them 3,685 gallons of water. Each barrel takes up about four square feet of floor space, requiring about 268 square feet. They store half the barrels in a 15' x 15' storage room (225ft²) And the other half in part of their three car garage. The barrels take up a lot of space, but the family feels good about having their emergency water supply.

Once you determine how much space you have available, you'll have a better understanding of how much water you can realistically store. Budget may also be a deciding factor. Larger containers cost more, but dividing the initial cost of the container by the storage capacity shows that larger containers cost less per gallon than smaller containers.

Conclusion

Water storage is essential to any emergency preparedness plan. It's best to store as much water as

Terms to Know

A **Hand Pump** typically has a long hose attached to some type of pump device and an exit spout. The hose is inserted into a water barrel and the pump extracts the water.

A **Siphon Hose** is a long hose used to siphon water from a container.

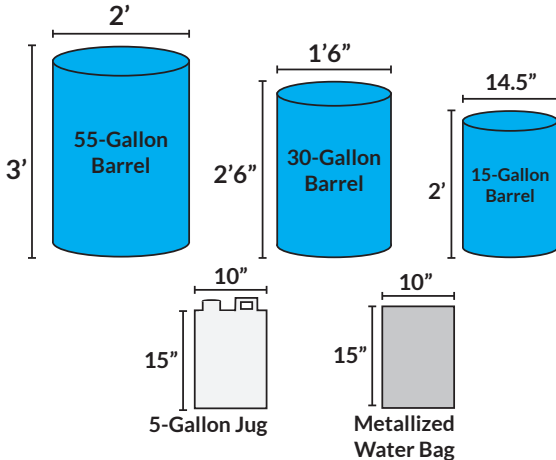
Metallized Water Bags are made of plastic laminated with a thin film of metal (usually aluminum) to reduce

its permeability and block light. These types of bags can easily be stored in boxes to reduce the chance of accidentally puncturing. Boxes also enable more efficient use of storage space.



you can within the limits of your family size, storage space, and budget.

How much space do water containers take up?



When planning your water storage, ask yourself the following questions:

- **How many people do I need to provide for?**
Remember that one gallon per person per day is recommended as a minimum amount.
- **How much storage space do I have available?**
If large storage containers aren't feasible, consider putting smaller containers in available space. This may take some creativity and possibly some calculating. For example, if a space in a closet in 5 feet long, 3 feet wide and has 2 feet of vertical space between the floor and the clothes you've hung up, you have a better idea of what container options will fit in that space.
- **How and where will I use the water?**
If you have space, consider storing water in the kitchen, bathroom, bedrooms, and hall closets. That way it's easier to access where you'll use it.

Now it's your turn to make a water storage plan. Fill out the Water Storage 101 Worksheet to determine your water storage needs. But first, here's a quiz to test your knowledge of water storage basics:

Quiz

1. What is the minimum amount of water you should store per person, per day?
 - (a) one liter
 - (b) one gallon
 - (c) five gallons
2. How much of your daily water storage should you use for drinking?
 - (a) two cups
 - (b) two pints
 - (c) two quarts
3. Water will store indefinitely if:
 - (a) the water is free of microorganisms
 - (b) the water is kept in a food-grade container made of an FDA approved resin
 - (c) the container is clean and tightly closed
 - (d) the container is kept sealed and away from sunlight
 - (e) all of the above
4. Milk-type one gallon jugs are good for storing water long term because they won't break.
 - (a) True
 - (b) False
5. Where you store your emergency water will depend on:
 - (a) the size of your living space
 - (b) the size of containers you use
 - (c) how you intend to use your water
 - (d) all of the above
6. You should have:
 - (a) stationary water storage
 - (b) portable water storage
 - (c) both



Water Storage 101 Worksheet

Step 1: How much water do you need to store?



People in Household	2-week Supply at	
	1 gal./person/day	3 gal./person/day
1	14	42
2	28	84
4	56	168
6	84	252
8	112	336

Step 2: Where do you have room to store it?

You may not be able to store all your water together if you live in an apartment, condo, or small home. Here are some places you can consider storing water. Check the boxes for the places you'll store water.

- In a basement or cold storage room
- Under beds, dressers, cribs, couches, end tables, or other raised furniture
- Behind furniture (you could fit quite a few AquaLiterz behind a couch pulled out four to six inches from the wall)
- In closets throughout the house or apartment
- In storage furniture (like ottomans or coffee tables with hidden storage compartments)
- As a last resort, outside or in a garage/shed (**away** from any chemicals and not in direct contact with the ground)

Step 3: How to store water

Where you find space to store your water will determine what type(s) of containers you'll use and any extra steps you'll need to take to protect your water supply. If you've got the space, 55-gallon barrels are great for stationary storage.

If you don't have that kind of space, smaller 5-gallon containers slid into the back of every closet in the house might be your best bet. If that still doesn't work, then a combination of 5-gallon, 1-liter, or even smaller containers can be tucked into a combination of places (as mentioned in Step 2).

If outside storage is your best or only option:

- Don't fill your barrels (or other containers) to capacity—leave room for the water to expand if cold weather is a factor in your area.
- Cover the barrels to prevent light and dust reaching them (light encourages growth of microorganisms, and dust on top of your containers could contaminate your water supply when you open them).
- Don't place barrels directly on the ground or cement—use a wood pallet or plywood plus a waterproof barrier between them and the ground.

Family Activities

- Calculate with your family how much water you'll need. Talk to your kids about how much water they use in a day and how much they'll have in an emergency.
- Go one day living on just a gallon of water per person.
- Look around your house for good places to store water. Measure them, and determine what containers will work best for the space you have.



Water Storage Plan

I/We have stored _____ gallons as a two-week supply for _____ people.

My/Our water supply is enough for each person to drink _____ each day and have enough left for:

- Light sanitation
- Cooking
- Other needs (additional sanitation, cleaning, other planned needs)

Our Water Storage			
Container Type	Number of Gallons	Storage Location	Treatment Type (if any)

Notes: _____
