# WEEKDAY WONDERS

Content developed by the Tennessee Aquarium Education Department

TENNESSEE AQUARIUM

# *Water Warriors: Day 1*

This week your young scientist has a chance to get to know water better. Your scientist will consider the question, "How much water do I use in a day?" S/he will also consider ways to keep water clean and how people and animals use water, including having fun in it. The Tennessee Aquarium works to make sure that humans and animals have clean water. This week, your scientist will have that same opportunity.

These curated activities are listed in a suggested sequence but may be done in the order that works best for you and your young scientists. Learn more about this series in the Introduction to Weekday Wonders.

---

## Question of the Day

## How much water do you use in a day?

---

## Daily Nature Journal

Ask your young scientists to spend some time outside completing their daily nature journal. Use the Guide to Nature Journaling to see the other prompts to help your scientist nature journal each day. They will develop a new appreciation and wonder for the world around them.

## Nature Journal

Have your young scientist think through a typical day. Ask him or her to make a list or draw pictures of everything that s/he does that requires water. Some things may come to mind quickly, such as brushing teeth and drinking water. Remind your scientist that many other activities also need water, such as flushing the toilet or washing clothes and dishes. If your scientist is not yet responsible for washing dishes or doing laundry, he or she should still include these activities, as clean dishes and clean clothes impact your scientist's everyday life.

# How Much Water Does That Take?

Have your scientist gather several containers of different sizes. Make sure that it is okay if your scientist puts water into each of the containers.

Give your scientist an 8 ounce (1 cup) measuring cup. Ask your scientist to fill the measuring cup to the 8 ounce mark with water. Then choose a container to fill. Your scientist should count how many measuring cups of water it takes to fill the container, then make a label for the container that shows the number of cups of water it holds.

Have your scientist repeat this process for several containers so he or she can get a feel for amounts of water. If possible, have some larger containers, such as a gallon milk jug (16 cups), to help your young scientist understand larger volumes.

Once your scientist feels as though s/he has an understanding of the volume of different containers, print or show him/her the list on page 4. Have your scientist fill in the second column with a prediction of how many cups of water each activity requires.

Share with your scientist how much each activity takes. Ask him or her to write the amount in the third column of the chart.

- Washing your hands requires 8 cups of water each time. People generally wash their hands about 12 times a day.
- Brushing your teeth takes about 12 cups of water each time if you do not turn off the water while brushing. Most people brush their teeth twice a day.
- Flushing a toilet uses 32 cups of water each time.
- Taking a shower requires about 33 cups of water each minute.
- Filling a pet water bowl requires about a cup of water per animal each day.
- Cooking uses about 4 cups of water per meal per person each day.
- A washing machine uses about 400 cups of water for each load
- A dishwasher uses around 32 cups of water in each load.
- Producing a 1 liter (4.2 cup) bottle of water requires about 3 liters, or 12.6 cups, of water.
- Producing a gallon of milk requires 4.5 gallons, or 72 cups, of water.
- Producing a cotton shirt requires 11,400 cups of water.
- Producing a hamburger requires 10,560 cups of water.
- Manufacturing a cell phone requires 240 gallons, or 3,840 cups, of water.

**Extension:** Have your young scientist cut 26 cards all the same size or cut index cards in half. Your scientist should make cards for each activity and each amount of water. Have your scientist mix the cards and place them face down on a flat surface.

S/he should turn over two cards and see if the activity matches the amount of water that activity uses. If the activity matches its water use amount, the scientist should keep the match. If the cards do not match, s/he should turn them back over and try again. If more than one young scientist is playing, have them take turns choosing cards. Whenever a scientist makes a match, s/he can take another turn.

## Rationing Water

Share the following information with your young scientist. Even though water covers about 70% of our planet's surface, water is a limited resource on earth.

- For emergency situations, it is recommended to have a gallon of water a day per person.
- In severe drought conditions or if your community is under water restrictions, you may be allotted 25 gallons a day per person.
- In many areas around the world, people must carry their water from a central location to their houses each day.

In all of these examples, it is important to be careful about the amount of water one uses.

Today, your young scientist will ration water. Help your young scientist find a large container with a wide opening, such as a bucket, and fill the container with 25 cups of water. Your scientist will also need a tablespoon and a smaller container to take "used" water to the sink. There are 16 cups in a gallon of water. There are 16 tablespoons in a cup of water. In this activity, the 25 cups will represent having 25 gallons of water in a drought situation.

Place the container in location near the door to the house or outside, such as near the mailbox. Based on the amounts of water in the previous activity, each time your scientist does an activity that requires water, have him or her go to the container, remove the same number of tablespoons as the number of cups the activity requires, and put it in the smaller container to take to a sink to pour out. For example, when your scientist washes hands, s/he should remove 8 tablespoons of water, to represent the 8 cups of water that activity uses. When s/he eats a meal, your scientist should remove water for that even if s/he did not prepare the meal because the water was needed to prepare the food.

Each time your scientist takes water from the container, ask him or her to keep track of the activity and how many tablespoons it used.
At the end of the day, have your young scientist write about how much water he or she used and if s/he was surprised by the amount. Also ask him or her to reflect on what it would be like to live in a place where s/he needed to walk to get water each morning. Finally, challenge your scientist to pick one or two ways to save some water, such as taking a shorter shower or being sure to turn the water off while washing hands.

# How Much Water Does That Take?

| Activity | Prediction (number of cups) | Actual (number of cups) |
|---|---|---|
| Washing hands | | |
| Brushing teeth | | |
| Flushing toilet | | |
| Shower | | |
| Fill a pet water bowl | | |
| Cooking | | |
| Washing machine | | |
| Dishwasher | | |
| Produce a 1 liter (4.2 cup) bottle of water | | |
| Produce a gallon of milk | | |
| Produce a cotton shirt | | |
| Produce a hamburger | | |
| Produce a cell phone | | |