



California Shines The 2011 U.S. Capitol Christmas Tree There is No Away

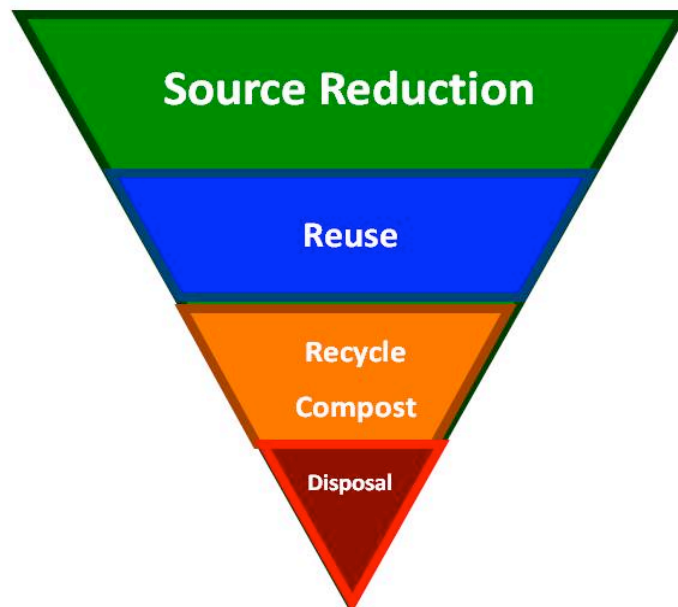
We ask that all ornaments for the Capitol Christmas Tree be made out of natural or recycled materials. Please share the thoughts in our mini-lesson "There is No Away" with your students when they create an ornament for the Tree.

There is No Away

- **Where is Away?** Ask students where they think that trash goes when they throw it away. Work with them until they understand that trash eventually ends up in a landfill. Show students the image of a landfill.



- **How much garbage do we produce in the United States?**
According to the most recent EPA figures (2008), the average American produces 4.5 lbs of garbage a day. Of this about 1.5 lbs are recycled. This means that we each send 3 lbs of garbage to the landfill a day. This adds up to over 1,000 lbs per person each year. In 2008, America produced 270 billion pounds of garbage according to the EPA. That is the same weight as nine million school buses. This many school buses could wrap around the earth about $2\frac{3}{4}$ times. That is a lot of garbage.
- **Pyramid Power** Imagine all of that garbage piled into one giant pile or pyramid. What if we only sent a small pyramid of trash to the landfill every year? If we want to keep the pile of garbage smaller, we can use another pyramid. This pyramid gives us options other than throwing our trash away. The options are in order from the best option to the worst option. The activities at the top of this pyramid are the best things you can do to keep less garbage from going to the landfill.



Hierarchy of Options for Managing Trash

This pyramid includes the 3R's, and shows which ones are the most important.

Reduce: This is the most important “R” and the one we should do the most. To Reduce means that we should not take something that is disposable if we can help it. For example, if you bring your own reusable bag to the store, or your own reusable water bottle, you will not have to take one that will need to be thrown away some day.

Reuse: Sometimes we forget our reusable bag or water bottle, and then we have to take a disposable one. If this happens then we can reuse what we take. If you have to take a disposable water bottle or bag, you can use it again (fill it up with more water or groceries). You are reusing disposable things when you make your Capital Christmas Tree ornaments out of items that would have gone to the landfill. Good job.

Recycle/Compost: When you can no longer use your disposable item, then you can recycle or compost it. Compost is made of natural materials like food scraps that will rot and turn back into dirt. They do not need to be put in the landfill if you have a compost pile or a worm bin. Instead of throwing your bag or plastic bottle away you can recycle it.

Disposal: If your item cannot be reused, recycled, or composted, it will have to be thrown away, but if you can do the other 3R's first, then look how much smaller our landfill pyramid will be!

Use the pyramid “Hierarchy of Options for Managing Trash” to discuss options other than sending more trash to the landfill.

Facts about plastic bags

- Introduced in the 1970's as an alternative to paper bags, plastic bags now account for 80 percent of grocery bags given out, according to the American Plastics Council.¹
- If everyone in the United States tied their annual consumption of plastic bags together in a giant chain, **the chain would reach around the Earth's equator 776 times!**³
- According to the United States International Trade Commission, in 2008 Americans used more than 102 trillion imported and domestically produced bags³.
- Of more than ten million pieces of garbage picked up on ocean beaches in 2009 during International Coastal Cleanup Day, 1,126,774 were plastic bags. Plastic bag debris was second only to cigarette butts/filters (21%) in number and accounted for full 11% of **ALL** marine debris picked up.²

Sources:

1. National Geographic News. *Are Plastic Grocery Bags Sacking the Environment?*

2. *International Coastal Cleanup sponsored by Ocean Conservancy Report*. September 2010.

3. U.S. International Trade Commission. *Polyethylene Retail Carrier Bags from Indonesia, Taiwan, and Vietman*. Publication 4080. May 2009, pg. IV-7.

*Calculation is based on the following: 2008 bag consumption, according to U.S. International Trade Commission = 102,105,637,000. Earth's Circumference = 131,480,184 feet, Average bag length = 1 ft.

These facts provided by Chico Bags: www.chicobag.com

Facts about plastic water bottles

- More than 60 million plastic bottles end up in landfills and incinerators every day – a total of about 22 billion last year.
- Six times as many plastic water bottles were thrown away in the US in 2004 as in 1997.
- Plastic water bottles are clogging the streams and tributaries that feed into America's rivers. The bottles that are not contained by fallen trees and other debris along our inland waterways are floating out into the Atlantic and Pacific Oceans. From there they are finding their way to the shores of island communities and coastal countries.
- Only about one in six plastic water bottles sold in the US in 2004 was recycled, leading to a national recycling rate of about 17%.
- Only a small percentage of PET bottles sold are used to make new plastic bottles – approximately 4%. This means that new water bottles must be manufactured almost entirely from virgin petroleum resin, consuming vast amounts of energy and resources.

Source:

Down the Drain- Plastic water bottles should no longer be a wasted resource by Pat Franklin WASTE MANAGEMENT WORLD May-June 2006



California Shines The 2011 U.S. Capitol Christmas Tree What Do I Have in Common with the Capitol Christmas Tree?

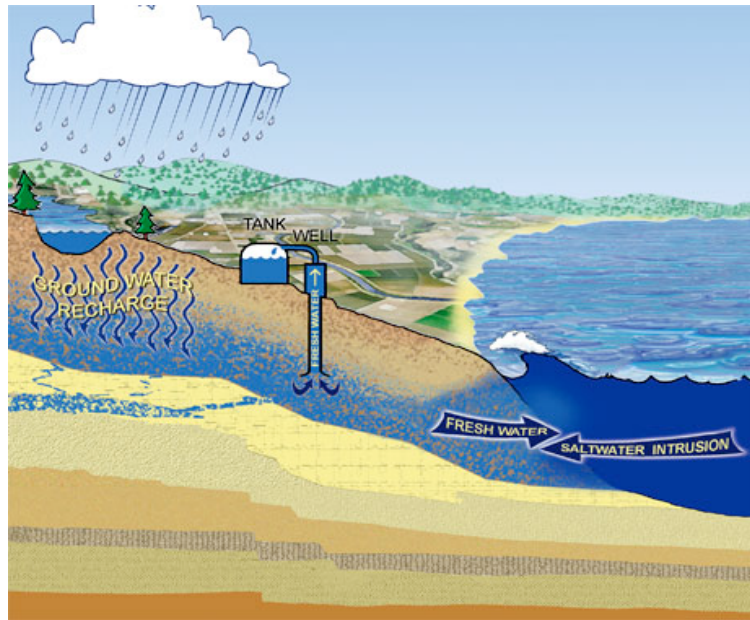
If you are going to produce ornaments that revolve around water such as snowmen, snowflakes, or icicles, consider sharing some thoughts with your students from our mini-lesson on watersheds “What Do I have in Common with the Capitol Christmas Tree”.

What Do I Have in Common with the Capitol Christmas Tree?

Most of us in California are linked to the mountains and the trees of their forests by water. We share this valuable resource and millions of Californian’s depend on water from our snow-packed mountains. Depending on where you live, your students may share the same water as the Capitol Christmas Tree in the Stanislaus Forest in the Sierra Nevada Mountains.

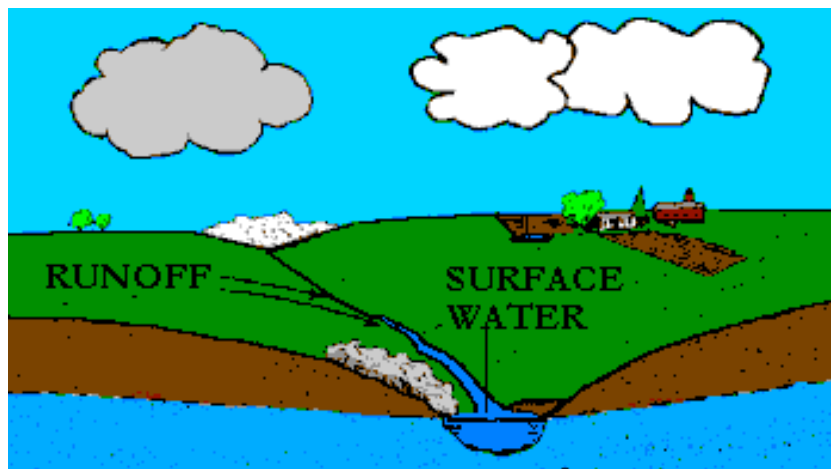
- **When does it rain in California?** Ask students if they can imagine when we get the most rain in California. Remind them that in the mountains, rain at this time of year is snow. Then ask if they can imagine when Californians use the most water. **Most of California’s rainfall is from December–April, but the greatest demand for water is during the dry summer months.** How do Californians get their water in the summer?
- **How do Californians get their water in the summer?** Ask students to imagine turning on a faucet and ask them where they think that the water comes from. Our water supply comes from two main sources: **Ground water** and **Surface water**

Ground water: When it rains water seeps down into the ground. Groundwater fills pores (spaces) between sand, gravel, silt and clay in water-bearing formations known as aquifers. Then these aquifers are tapped by wells and the water is pumped up to the surface.



Kentucky Department for Environmental Protection <http://water.ky.gov/groundwater/Pages/GroundwaterAwareness.aspx>

Surface water: When it rains or snows the water that isn't absorbed into the land runs off into creeks, streams, rivers, and lakes. The water is then used by communities.



SOURCE: "Rural Water Supply and Sanitation"
Forrest H. Wright Ph.D.

Drawn By: Paul Wright

SURFACE WATER

- **Where does my water come from?** To find out where the water in your community comes from go onto the Water Education Foundation website www.water-ed.org and click on the icon "Where does my water come from?"
- **In California, most of our water comes from the Mountains.** Throughout the winter months, snow builds up in the high elevations of California's mountain ranges. Water is stored as snow throughout the winter and then in

the spring and summer this snow melts and flows in to creeks, rivers, and lakes. The Mountains in California are major watersheds providing most of California's surface water. Land that collects water is called a watershed.

- **What is a watershed?**

Materials: spray bottle with water, 8 1/2" x 11" sheets of paper, water soluble color marking pens

Activity: Make a paper watershed

1. Take a piece of paper and have students crumple the paper into a ball. Next, students will open up their ball and spread it out a little (They should not flatten their sheet of paper). This will create a model of a landscape rich in hills and ridges.
2. Have students take water soluble color marking pens of two different colors. They should mark all of the ridges with one color marker and all of the valleys where they think that water will flow with another color marker.
3. Spray the model landscapes with the spray bottle.
4. Have students make observations about where the water goes and the color of the water.

Watershed Definition

A watershed is the area of land that is drained by a creek, stream, or river. All of the land on earth is part of some watershed.

When water falls to the earth it lands in a watershed. A watershed is the land that captures water in any form, such as rain, snow, dew, sleet, or hail. All the land whose water drains into a particular stream system or lake is the watershed for that body of water.

Think of the word "shed". It can mean something that sores things, like a garden "shed", or it can mean to let something run off, like an umbrella "sheds" water. A watershed does both! Some rain that falls on the watershed runs off forming creeks, streams, lakes and rivers, while some of the water seeps into the ground where it is stored. In the mountains surface water is also stored throughout the winter as snow.

Source: The State Water Resources Control Board, www.swrcb.ca.gov

- **The Sierra Nevada Mountains are a Major Watershed for California**
Here are facts about the Sierra Nevada watershed and how much Californians depend on the gift of water that these mountains offer us every year.
 - The Sierra Nevada is made up of 24 major watersheds which provide up to 65% of California's developed water supply and almost all of Northern Nevada's.
 - The State Water Project, which supplies water to the San Joaquin Valley for irrigation and drinking water to the Bay Area and southern California comes from the Sierra Nevada Mountains. Water from this conveyance system serves about two-thirds of California's population.
 - Sierran streams generate roughly 30% of California's total surface runoff, providing 20 million acre feet of surface water each year through rainfall and snowmelt. The total for all California rivers and streams is about 71 million acre-feet.
 - One acre-foot equals about 326,000 gallons, or enough water to cover an acre of land, about the size of a football field one foot deep according to the Water Education Foundation.

Source: Troubled Water of the Sierra By Kerri L. Timmer Edited by Joan Clayburgh
Sierra Nevada Alliance- www.sierranevadaalliance.org

Map- Major Rivers in California

Look at the map below. It shows the major rivers in California. Notice the ring of mountains surrounding our fertile Central Valley. See the way that the rivers flow down out of the Sierra Nevada mountains and into the Central Valley and then eventually into the Delta, the Bay and the Pacific Ocean.



<http://www.water.ca.gov>

