

Discovering Drought

illustrations by Peter Grosshauser



WHAT IS DROUGHT?

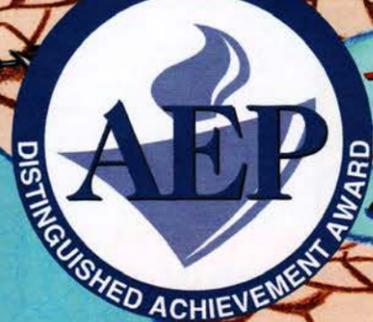
DROUGHT BINGO

ANOTHER TIME AND PLACE

YOUR WATER BANK ACCOUNT

DESIGNED FOR DROUGHT

FINALIST



A TALE OF TREE RINGS

DROUGHT DISCOVERIES

Project **wet**

Your Water Bank Account

For thousands of years, people everywhere have had to prepare for drought. In **arid** (dry) Arizona, the Hohokam Indians built water storage systems and **canals** to save rainfall and bring it to their crops as early as 300 B.C.

In the last century, large dams were built on many rivers in Arizona and elsewhere. The reservoirs these dams created store water, which can be moved through

canals to areas where it is needed. Water is also stored naturally underground in some places. When precipitation falls on the earth's surface, some of it sinks into the ground where it fills air spaces in rock formations and soil. This is called ground water. It is held in natural, underground rock or soil "sponges," or **aquifers**, and can be pumped to the surface for use. Water managers sometimes **recharge** (fill) aquifers by injecting water or allowing it to sink into the

ground. This method, called **water banking**, stores water for future use.

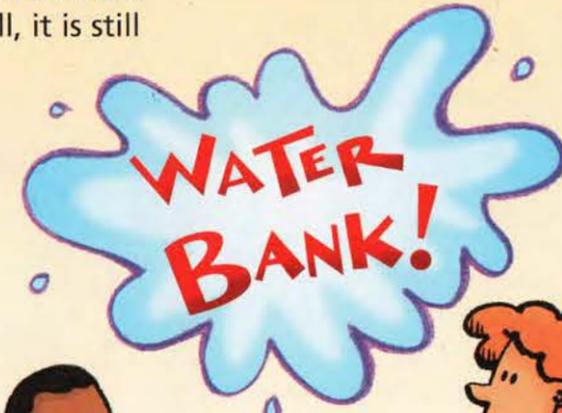
Stored water is critical in times of drought. Water managers use all of these sources and tools to manage the water supply for all **water users**. Water users include farmers, people in cities, businesses and industries. Water is also needed for fish and wildlife, the environment, recreation, energy production, navigation and more!



Several years of drought have lowered Lake Mead reservoir in Arizona and Nevada. The top of the white "bathtub ring" on the rock marks the water level when the reservoir was fullest, 102 feet higher!

ROY GIVEN 10/26/2004

Even with water stored in reservoirs and aquifers, managers need to be ready to take action if a drought occurs. In times when there is plentiful rainfall, it is still important to practice **water conservation**.



TRY THIS!

You can think of a water supply as a bank account, with deposits (water put in) and withdrawals (water taken out). What happens to the bank account as the population grows?

- 1) Place five coins in a cup. This is your initial water supply. Keep 20 coins aside.
- 2) Make five strips of paper. Number them one to five.
- 3) Mix up the strips, then draw one. The number tells the amount of precipitation you receive that year. For example, if you draw a four, add four coins to your cup. Fill in the chart. Then remove the number of coins required to fill your city's water needs that year (see chart).
- 4) Continue to add and subtract coins from your water supply as you draw numbers. Fill in the chart as you go. What happens?

Year	+ Yearly Rainfall	- Amount to Withdraw	= Water Supply
Starting Water Supply = five coins			
1	4	one coin	8
2		two coins	
3		three coins	
4		four coins	
5		five coins	
6		six coins	
7		seven coins	



DROUGHT DICTIONARY

- aquifer:** Underground rock formation or soil that yields water
- arid:** Characterized by low moisture
- canal:** A man-made waterway used to transport water
- conservation:** Using water-saving methods to reduce the amount of water consumed
- recharge:** Water entering an aquifer
- water banking:** Storing water underground for future use
- water user:** Any person, place or thing that uses water



Shut off your sprinklers on a rainy day. Save 400 gallons of water!



Replace a 10-foot by 10-foot section of your lawn with drought-tolerant landscaping. Save 15 gallons of water per day!

Designed for Drought

People store water in reservoirs and water tanks to prepare for drought. What do plants and animals do? Some have **adaptations** that help them live in dry conditions. For example, saguaro cacti can store hundreds of gallons of water for use during drought. Desert tortoises can recycle water within their bodies so they don't need to drink often. They can get most of the water they need from the plants they eat.

Even in a desert, not all animals and plants are equipped to survive drought.

Frogs, fish, birds and other **aquatic** animals that live in rivers or springs may not survive if their habitats dry up, and they can't relocate to a new water source.

Lack of water causes stress for plants and animals. When they are weakened by drought, they are more likely to get sick. Other effects of drought can include insect infestations and more forest fires. You may see fewer wildflowers and more weeds; birds may migrate at different times of year than usual; and animals may have fewer babies.

TRY THIS!

See if you can identify 10 signs of drought in the picture. Circle them, and write your observations in the notebook.

Which plants and animals have adaptations for drought? Describe them.



Plant drought-tolerant shrubs in your yard to replace plants that need daily watering. Save 100 gallons per day!

DROUGHT DICTIONARY

adaptation: A physical feature that allows a plant or animal to survive in a particular environment and through changing conditions

aquatic: Living or growing in water

SIGNS OF DROUGHT



During severe drought, even prickly pear cacti may struggle to survive.



Water your lawn in the early morning instead of during the hottest part of the day. You can water for a shorter period of time and save 100 gallons of water per day!