

FOCUS

wild arizona

Key Words

Adaptation: physical or behavioral characteristic that helps an animal survive

Arid: an area that is dry and receives very little rainfall

Catchment: something used to collect and store water

Drought: a long period with unusually low rainfall

Simulation: something that copies the real world

All animals need water. It is necessary to digest food, rid the body of wastes and maintain a healthy body temperature. Water is so important that most animals are made up of about 65 percent water and most plants are 90 percent water!

Do the math:

How much do you weigh?

Multiply this number by .65

This is about how much water is inside your body right now!

Water can be difficult to find in an arid state like Arizona. We humans are lucky: Often we have water

pumped to our houses from hundreds of miles away. When we turn on a faucet, water comes out. We even can go to the store and buy water. Animals are not so lucky. They have to find all the water they need to survive.

During the past several years, Arizona has been in a severe drought. With so little rainfall, animals are having a difficult time finding the water they need. Sometimes, humans help by building water catchments. These collect rainwater and store it in large tanks from which animals can drink. When rainfall is limited, we even bring water to the tanks using 1,500-gallon water trucks.

Do the math:

One gallon of water weighs about 8 pounds. What is the weight of the water that can fit into one water truck?

If one water catchment holds 8,000 gallons of water, how many trucks would be required to fill the catchment?

How much would all that water weigh?

Not all animals need our help. Many have adaptations that allow them to conserve the small amount of water they do have, or to find water in unique places.

The kangaroo rat never needs to drink water. It is able to find all the

water it needs from its food—seeds. The Gila monster can store water in its tail, using it only when water is scarce. What other adaptations can you think of that may help an animal survive during a drought? Are some more effective than others?

Do the science:

Pretend that you just discovered a new animal called the “desert sponge.” You have learned that this animal must be outside for at least two hours every day to find enough food. However, it is capable of storing lots of water. You are curious about how the desert sponge has adapted to conserve water during the harsh summer months. To find out, you decide to do a simulation.

Materials:

- 1 dry sponge
- water
- measuring cup
- small plate or dish
- pen or pencil
- research journal



Procedures:

1. At the beginning of the day, place your sponge in the dish.
2. Use the measuring cup to get water.
3. Slowly add water to the sponge until it will not absorb any more water.
4. Record the amount of water you added to the sponge in your research journal.
5. During the day, take your sponge outside for at least two hours to "feed." Think of ways to keep the sponge as wet as possible all day long without adding any water to it.
6. At the end of the day, squeeze as much water as possible from the sponge into the measuring cup. Record this number in your research journal.



Research Journal

Your name: _____

Date: _____

Before experiment:

What will you do to keep your sponge wet throughout the day?

What natural materials (such as soil, plants, etc.) will you use to protect the sponge?

During experiment:

How much water did the sponge start with? _____

Time you started: _____

Time the sponge was feeding: _____

Time you ended: _____

After experiment:

How much water did the sponge end with? _____

How much water did the sponge lose during the day? _____

Briefly describe how successful you think your adaptations were?

What would you do differently in the future? _____

What would happen to your sponge if the environment changed?

ILLUSTRATIONS BY TRACY HILL

■ This feature is part of the Arizona Game and Fish Department's Focus: Wild Arizona program, a free education program for teachers, parents, students or anyone interested in learning about wildlife and habitat. Visit our Web site, azgfd.gov/focuswild, to find exciting lessons and resources.