

Science Standards Correlation

SC06-S2C2-03, SC04-S4C1-04, SC05-S4C1-01, SC04-S4C1-06, SC07-S4C3-02, SC08-S4C4-01, 02&06

## **MEET THE HERPS!**

Some can go without a meal for more than a year. Others can live for a century, but not really reach a ripe old age for another couple of decades. One species is able to squirt blood from its eyes. What kinds of animals are these? They're herps – the collective name given to reptiles and amphibians.

### **What Is Herpetology?**

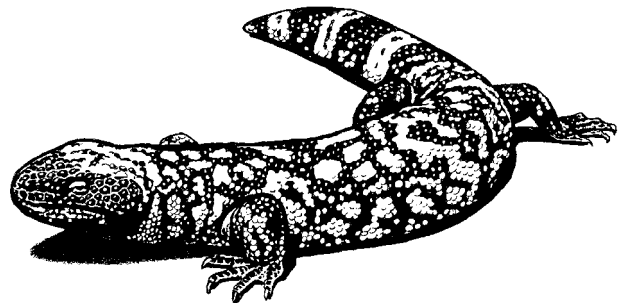
The word “herp” comes from the word “herpeton,” the Greek word for “crawling things.” Herpetology is the branch of science focusing on reptiles and amphibians. The reptiles are divided into four major groups: lizards, snakes, turtles, and crocodilians. Three major groups – frogs (including toads), salamanders and caecilians – make up the amphibians. A herpetologist studies animals from all seven of these groups.

Even though reptiles and amphibians are grouped together for study, they are two very different kinds of animals. They are related in the sense that early reptiles evolved from amphibians – just as birds, and later mammals, evolved from reptiles. But reptiles and amphibians are each in a scientific class of their own, just as mammals are in their own separate class.

One of the reasons reptiles and amphibians are lumped together under the heading of “herps” is that, at one time, naturalists thought the two kinds of animals were much more closely related than they really are, and the practice of studying them together just persisted through the years.

### **Reptiles vs. Amphibians: How Are They Different?**

Many of the differences between reptiles and amphibians are internal (inside the body). For example, a reptile's circulatory system and some of its skeletal features are quite different from those of an amphibian. Most reptiles have a better-developed lung capacity than amphibians resulting in a more efficient respiratory system. There are some noticeable external (outside the body) differences between them as well. Most reptiles have claws on their feet and dry skin covered with scales. In contrast, most amphibians do not have claws on their feet and their skin is moist and scale-less.



Another difference has to do with eggs and development. Most amphibians lay soft, shell-less eggs in the water or in very moist areas. Their young usually reach adulthood after passing through metamorphosis (changes in body form). Reptiles usually lay

shelled eggs on land. The newly hatched young look very much like miniature adults and do not go through metamorphosis. Generally, reptiles lay fewer eggs than amphibians.

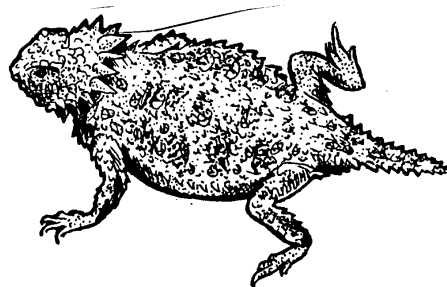
### **What Do Herps Have In Common?**

Even though reptiles and amphibians are different from each other in many ways, they do have certain important characteristics in common. Let's take a look at some of their similar characteristics:

- Ectothermic: All herps are ectothermic. Ectothermic animals are often referred to as cold-blooded, however this term is misleading because their blood is not always cold. Ectothermic animals are not able to generate their own body heat and must use an external heat source (sun, warm rocks, etc.) to warm up. Herps must move around in their environment (sunny areas to shady areas) in order to maintain a constant body temperature. In order to become active, and even digest their food, reptiles and amphibians must become warm. That's why you see them basking in the sun on cool mornings. Most herps are sluggish or stay relatively inactive on cold days. When summer daytime temperatures get too hot, many desert herps (especially snakes) will retreat to the shade or underground burrows, and remain inactive until evening. Endothermic (warm-blooded) animals, such as mammals, generate enough body heat to stay relatively active even when the temperature is relatively low and are able to maintain a constant temperature even when it gets hot.

Being ectothermic has its advantages. For example, herps don't need to eat as much as birds and mammals and can survive well in desert areas where food is sometimes scarce. Endothermic animals need to eat more often to maintain their body temperature and use a lot of energy looking for food. Most herps can maintain a surprisingly constant body temperature when active simply by moving back and forth from cooler to warmer areas.

- Outgrowing Their Skin: If you spend much time hiking in the Sonoran Desert Region, you may have been lucky enough to find the dry, thin, outermost layer of skin that a snake left behind when it shed. Most other herps also shed their skin from time to time – usually several times a year, depending upon how quickly the animal grows. You'd have a tough time finding other herps' skins though. That's because many herps eat their shed skins, which are a good source of protein.
- A Unique Way To Smell: Have you ever wondered why certain snakes and lizards flick their tongues in and out? They are partially “smelling” and “tasting” the environment. As a herp's tongue flicks in and out, it is collecting molecules from the air and ground and depositing them in the paired sensory pockets of the Jacobson's organ at the roof of their mouth. The Jacobson's organ analyzes the molecules and sends messages to the herp's brain about the area.



## People and Herps

People affect herps in many ways. In addition to eating herps, people also make fancy shoes, purses and luggage from herp hides and carve jewelry from turtle shells. Some people buy live amphibians and reptiles to keep as pets or provide schools with specimens for study. Unfortunately, many people go out of their way to kill snakes and other herps because of fear and dislike. Many myths and stories about herps have been created and handed down through generations, encouraging negative attitudes.

On the other hand, some cultures have great respect for herps. The Romans and Greeks often thought herps had great healing powers. The Tohono O’odham consider certain herps to be sacred, such as rattlesnakes, Gila monsters, horned toads and sidewinders. These are never intentionally killed or harmed and are treated with respect. More and more people today are recognizing the value of protecting herps and are helping to prevent habitat destruction and over-collecting.

We are fortunate to have so many amazing species of amphibians and reptiles here in the Sonoran Desert, all of whom play an important part in desert ecology, especially desert food webs. When you complete the *Amphibians and Reptiles* Lab at the Desert Museum, you’ll be getting a close-up look at some live herps and discovering more about these exciting creatures!

## Review Questions

1. What is a “herp?”
2. Describe three similarities and three differences between amphibians and reptiles.
3. What is an advantage to being ectothermic?
4. Name and describe three herps that you’ve observed near your home or in the desert. Describe any interesting behaviors you’ve observed.

## Critical Thinking

There is a new student at your school who has just moved here from Maine. He’s never seen a tortoise, lizard or venomous snake. He plans to spend a lot of time hiking in the desert and asks you to tell him all about desert herps.

1. List and describe some desert herp information that you think is important for him to know.
2. Discuss your list with the class and explain why you choose this information.
3. What kinds of reptile and amphibian questions would you like answered? Where might you find the answers to your questions?

*Couch’s spadefoot toad*

