

How Animals Get Rid of Excess Heat to Keep Cool

Just like machines, animals must be able to deal with changes in temperature. Whether it is changes in the temperature of their surroundings, or internal temperature changes, animals have a variety of ways of coping with the heat.

Most excess heat simply radiates from the animal to the environment. To take advantage of radiational cooling, animals increase blood flow to the outer parts of their body.

This is why when we get overheated, our skin becomes red. Seventy-five percent of our cooling comes from radiation. We also start to sweat as we get hot. The heat from our skin warms the sweat making it evaporate, thus cooling us. Fifteen percent of our cooling is due to sweating. We also lose some ten percent of our heat as we breathe. All mammals have sweat glands, but only primates have them all over their bodies.

Dogs lose most (75%) of their heat by radiation while the rest (25%) comes from panting. When animals pant, water in their saliva evaporates off the tongues surface. This is why they need lots of fresh water during hot weather. Lions also pant to stay cool. Cats, rabbits, and mice lick their feet and fur to stay cool.

Animals that are native to hot climates usually have special adaptations for dealing with the heat. The more surface area an animal or object has, the more easily heat radiates away. This is why many desert animals have long necks, ears, legs, or tails. For example, the desert fox, jackrabbit, and elephant have large, thin ears which radiate heat away. The long neck, legs, and tail of a camel are perfect for radiating excess heat.

Some birds like vultures and storks, excrete urine on their legs, which when it evaporates, cools their blood. Finally, many desert animals are lightly colored to absorb less heat from the sun, and tend to be active only during the cooler parts of the day.