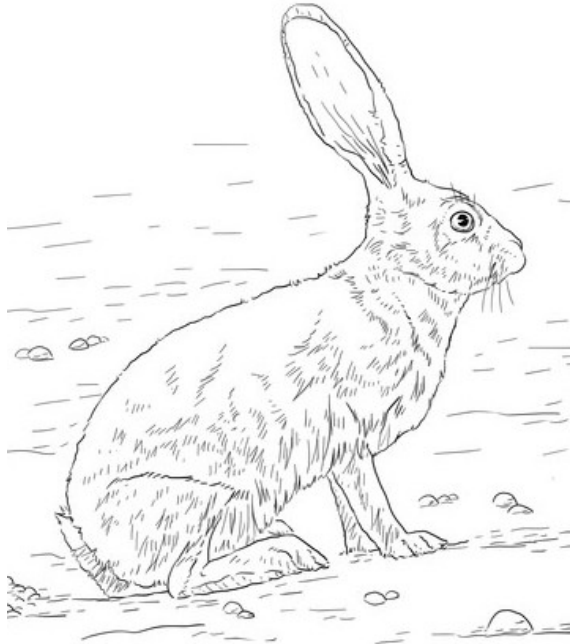


My, What Big Ears You Have!

Have you ever wondered why jackrabbits have such large ears? It's the same reason that elephants have such giant ears! They both live in very hot environments and have to be able to **regulate** their body temperature.



You are able to **regulate**, or control, your body temperature through sweating! When it's hot outside, you sweat and it cools you down!

When the jackrabbits are hot, they cannot sweat because they would lose a lot of water – and there's not a lot of water in the desert! So jackrabbits have **adapted** to hot desert temperatures by cooling off with their big ears!

How does this work? Their large ears provide a large **surface area** of skin that is packed with small blood vessels. These blood vessels carry the hot blood from the body's core up to their ears where the heat is lost to the surrounding air. The larger the surface area, the more quickly heat can be released. You can easily prove this with an at-home experiment!



In order to do this experiment, you need three mugs and a large baking pan or casserole dish. Around 9" by 13" or larger is a good size for the pan. Ask an adult for help!

Measure out one cup of water, and carefully pour it into mug #1. Measure & pour one cup of water into mug #2. Place both mugs into the microwave, and heat for two minutes.

Be careful taking the mugs out as they will be warm, but not boiling! Pour the hot water from mug #1 into the baking pan. Then pour the hot water from mug #2 into mug #3 that was not microwaved. Why should you bother transferring the water from mug #2 into mug #3? We want to see how quickly the water cools down in two differently shaped containers – wide pan vs. narrow mug – so both containers should be at room temperature for a fair comparison! It's okay if the pan and the mug are different materials, most kitchenware is similar enough, just make sure you don't use a thermos!

Wait 6-10 minutes. Carefully stick your finger in the mug, and then stick your finger in the baking pan. Can you feel the difference? The water in the pan is a lot cooler! This is because there is a lot more **surface area** through which the water can lose heat!

