

Built for an Ice Age



How did mammoths stay warm in their chilly environment?

Large, lumbering shape. Strong tusks. Long, nimble trunk. How could a mammoth have been so much like an elephant . . . and yet be so different? The answer lies in its environment.

Mammoths lived during the Earth's last ice age. That meant their habitat was extremely cold. In order to survive, mammoths needed adaptations to freezing temperatures. That gave them some important differences from elephants, whose hot environment often leaves them struggling to cool down.

- **Thick fur:** Mammoths were covered with thick fur, which **insulated** (kept heat from escaping) their bodies. Elephants have so little hair they look naked. That keeps heat from building up, but it leaves their skin exposed to the harsh sun.

That's why African elephants take mud baths, which give them a layer of red earth as sunscreen.

- **Deposits of fat:** Like fur, fat is a good insulator. Mammoths had a thick layer of fat just under their skin to keep them warm. Fat is also a good way to store energy if food is scarce—as it might be during a long winter.
- **Small ears:** Of course, mammoth ears were bigger than human ears. But they were smaller than the ears of their nearest living relatives, Asian elephants. And they were much smaller than the giant ears of their more distant cousins, African elephants. That's because elephants' large ears are built to help them cool off. The backs of their ears are full of blood vessels,

allowing warm blood to come to the surface to cool off. Mammoths wanted to keep as much body heat as possible, so small ears helped.

- **Blood built for cold:** Scientists have discovered that mammoth blood shares an adaptation with several living cold-weather animals. It can deliver oxygen to muscles at low temperatures—something that elephant blood (and our blood) could not do.

If mammoths were so well adapted for cold, how did they die out? When the Ice Age ended, warming temperatures would have greatly changed their habitat. Some scientists also think our human ancestors, who hunted mammoths, played a role. But we may never know for sure.