



How animals keep warm and cool

Animals have all of the problems that we have in keeping warm and cool. An animal's shape, and how it behaves, often give you a clue to how it keeps warm and cool.

Remaining at just the right temperature is as important for animals as it is for people. Here are two examples to show you how different animals keep warm.

Alligators and other reptiles

Reptiles include alligators, crocodiles and lizards. They are **COLD-BLOODED** creatures, which means they use heat from their surroundings to keep warm.

At the same time, a reptile can only become active if its body is at a certain temperature. This is why all reptiles sunbathe in the first part of the day. By sunbathing, they soak up radiation from the Sun, and this heats up their blood so they can become more active. This is why

you can spot reptiles on sunny stones, and why alligators come out of the water and sit on river banks (Picture 1). Once they are warm enough, they can begin to hunt for food.

Because they depend on heat from the Sun, a reptile will be much less active on a cold day than on a hot one.

A reptile loses heat through its mouth. This is why alligators, for example, often keep their mouths open (they gape). This keeps them from overheating.

Reptiles must be careful they do not get too hot. Alligators, for example, cool off in the water.

▼ (Picture 1) Alligators sunbathe in the early part of the day to heat up their blood.



Elephants

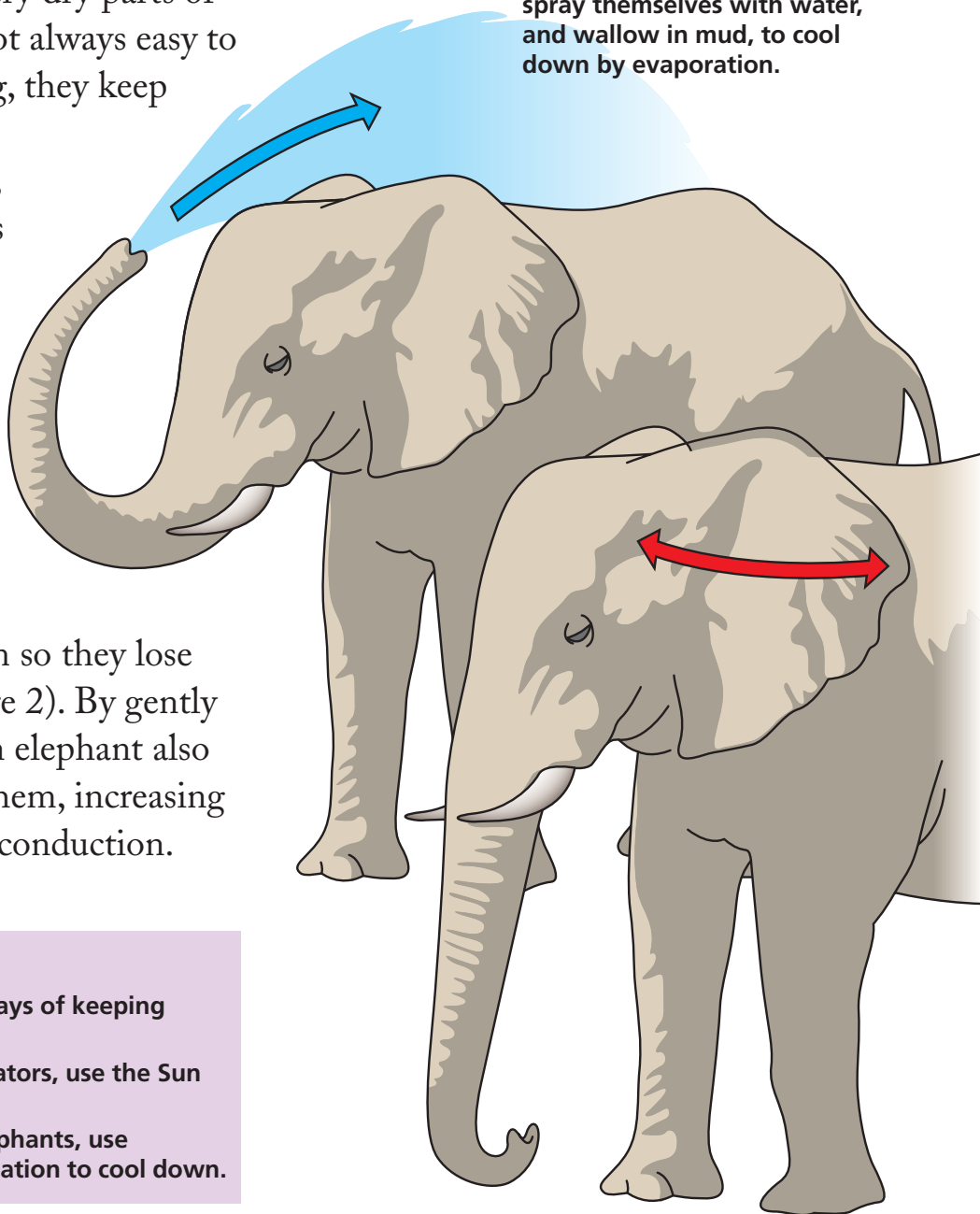
Elephants are **WARM-BLOODED** creatures and can cool themselves using their blood supply in a similar way to humans. Most elephants live near the equator, where it is always hot, and so the main problem is how to keep cool.

Elephants can sweat, but then they lose a lot of water, and this can be a problem because elephants live in very dry parts of the world where water is not always easy to find. So instead of sweating, they keep cool by using their ears!

You may have noticed how, when you are hot, your ears also become hot. Ears are very good at losing heat because they stand out in the air. They lose heat by conduction, convection and radiation. Now look at an elephant's ears. Their massive size allows more blood to flow through them so they lose heat very efficiently (Picture 2). By gently wafting them to and fro, an elephant also makes more air flow over them, increasing the amount of heat lost by conduction.



▲▼ (Picture 2) Elephants circulate their entire blood supply through their ears once every 2 minutes. They also spray themselves with water, and wallow in mud, to cool down by evaporation.



Summary

- Animals have many different ways of keeping warm and cool.
- Cold-blooded animals, like alligators, use the Sun to warm up.
- Warm-blooded animals, like elephants, use conduction, convection and radiation to cool down.