1 Feeling warmth

Although we can sense hot and cold in a general way, our bodies are not very good at measuring it.

People often say how warm it is outside, or how warm or cold something is.

When we describe something as warm or cold, we are comparing it to what feels hotter or colder than us.

1

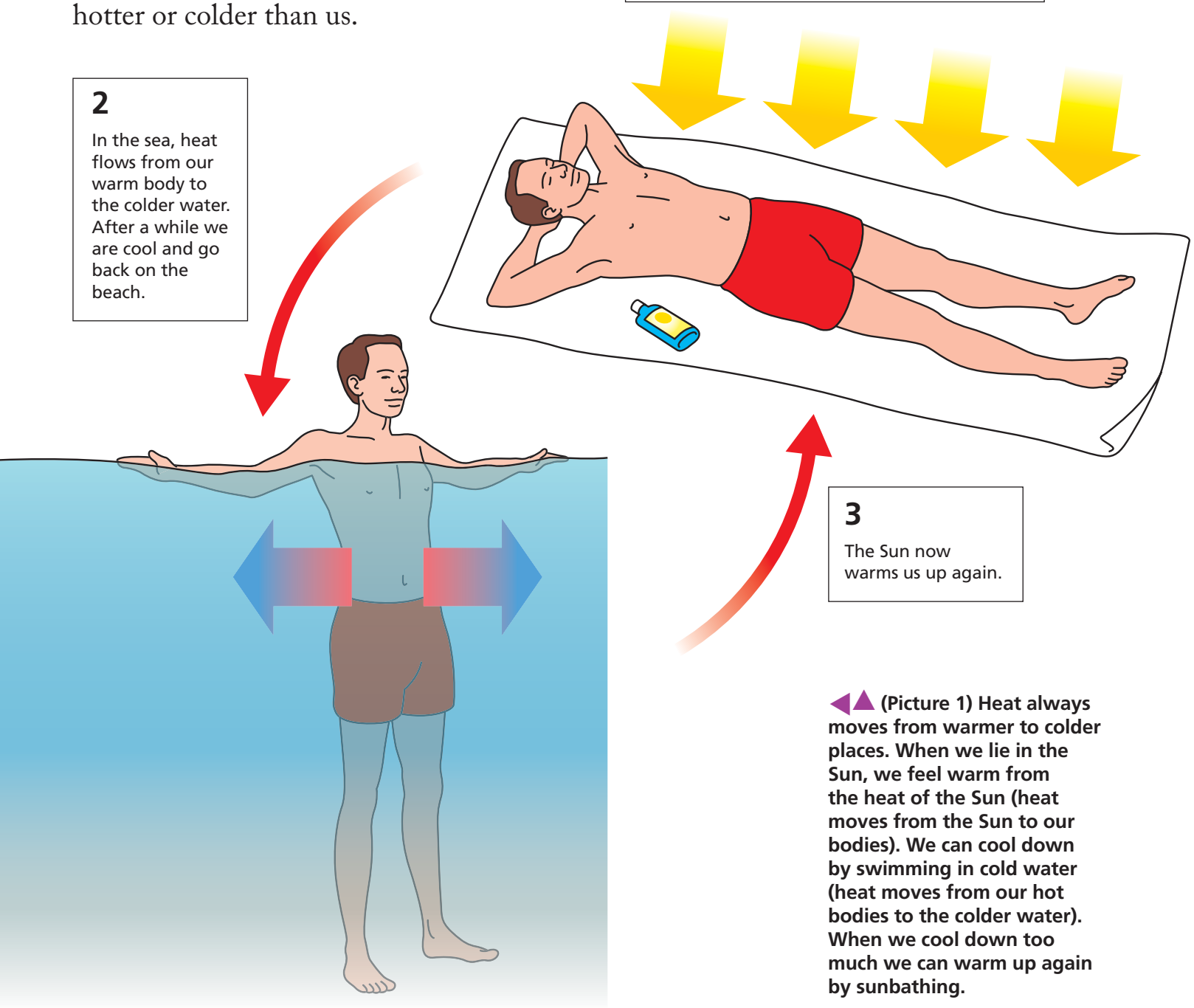
Heat flows from the hot Sun to our colder body. As more heat is transferred, we can feel uncomfortably hot. This is when people on beaches head for the sea to cool off.

2

In the sea, heat flows from our warm body to the colder water. After a while we are cool and go back on the beach.

3

The Sun now warms us up again.



(Picture 1) Heat always moves from warmer to colder places. When we lie in the Sun, we feel warm from the heat of the Sun (heat moves from the Sun to our bodies). We can cool down by swimming in cold water (heat moves from our hot bodies to the colder water). When we cool down too much we can warm up again by sunbathing.

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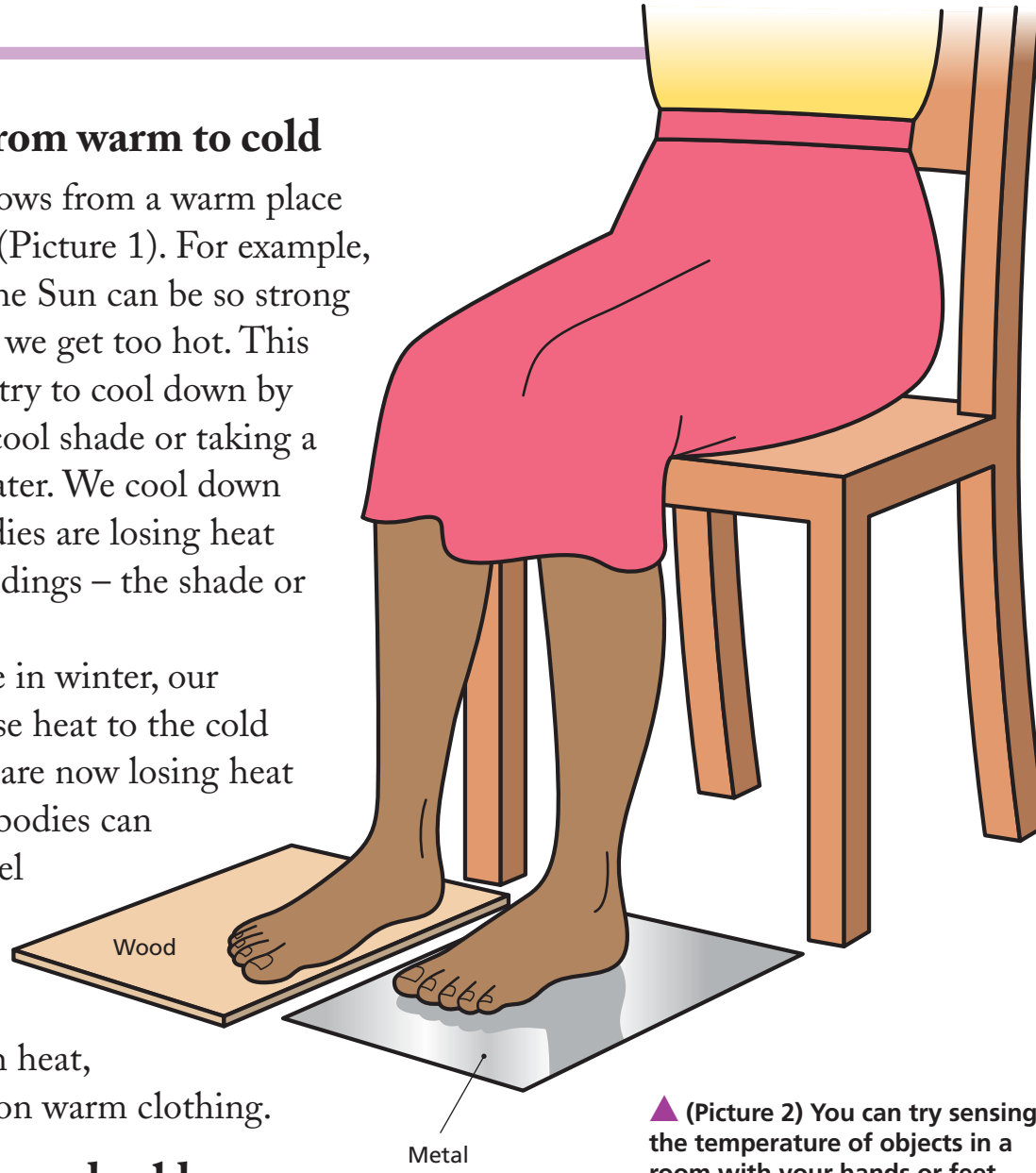
Heat flows from warm to cold

HEAT always flows from a warm place to a colder one (Picture 1). For example, the heat from the Sun can be so strong in summer that we get too hot. This is why we then try to cool down by going into the cool shade or taking a swim in cool water. We cool down because our bodies are losing heat to their surroundings – the shade or the water.

If we go outside in winter, our warm bodies lose heat to the cold air. Because we are now losing heat faster than our bodies can replace it, we feel cold. At this time of year, to try to stop losing too much heat, we have to put on warm clothing.



▲ **(Picture 2) You can try sensing the temperature of objects in a room with your hands or feet. Feet are more sensitive.**

Feeling warm and cold

Our measure of warmness – called **TEMPERATURE** – is actually quite unreliable and easily fooled.

Feet are among the most temperature-sensitive parts of the body. Even so, if you put one bare foot on a piece of wood, and put the other bare foot on a sheet of metal, the metal will feel colder, even though you know the wood and the metal are at the same temperature (Picture 2).

Metals feel colder than other materials even when they are in the same surroundings, and at the same temperature. This is because they carry heat away from the feet or hands quickly. You will find out more about this way of sharing heat on pages 8 and 9.

Summary

- **We sense warm and cold through our skin, but not very accurately.**
- **Heat always flows from a warmer place to a colder place.**

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