

# An Experiment



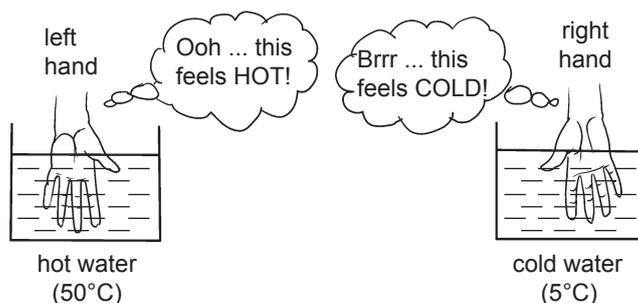
## Experiment

Let's find out if our sense of touch is accurate in judging temperature.

### Step 1



Place your left hand in a container of hot water and your right hand in a container of cold water.

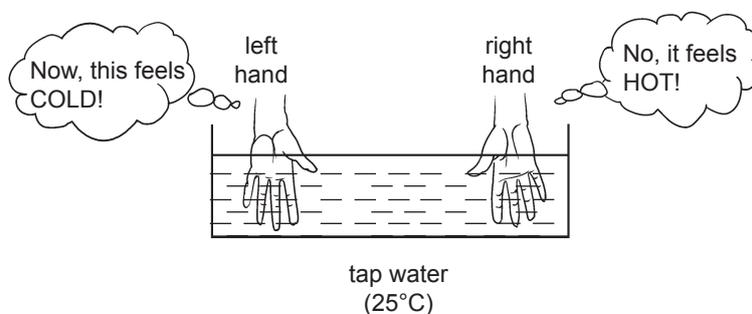


We can use our hands to feel whether the water is hot or cold.

### Step 2



Take out both hands and immediately place them into a third container which contains tap water at room temperature.



Interestingly, the left hand (which was previously in hot water) now feels cold and the right hand (which was previously in cold water) now feels warm!

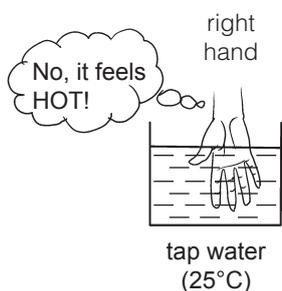
Both hands which are now in the SAME container of tap water are feeling different degrees of heat.

From the results of this simple demonstration, we can conclude that **our sense of touch is NOT an accurate judge of temperature.**

## Explanation

Before placing both hands into the container of tap water, the left hand was already feeling hot while the right hand was already feeling cold.

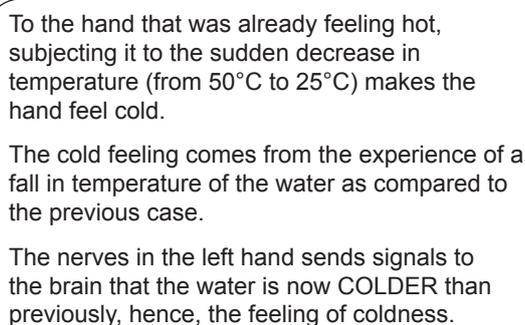
Our skin is sensitive to changes in the temperature of the surroundings.



To the hand that was already feeling cold, subjecting it to the sudden increase in temperature (from 5°C to 25°C) makes it feel hot.

The feeling of hotness comes from the experience of a rise in temperature of the water as compared to the previous case.

The nerves in the right hand sends signals to the brain that the water is now HOTTER than it was previously, hence, the feeling of hotness.



To the hand that was already feeling hot, subjecting it to the sudden decrease in temperature (from 50°C to 25°C) makes the hand feel cold.

The cold feeling comes from the experience of a fall in temperature of the water as compared to the previous case.

The nerves in the left hand sends signals to the brain that the water is now COLDER than previously, hence, the feeling of coldness.

In conclusion, although our sense of touch can give us a rough indication of whether an object is hot or cold, we cannot rely totally on our sense of touch to accurately gauge the temperature of an object.

A similar experiment can be carried out by holding a mouthful of iced water in your mouth for 30 seconds. After that, swallow the water and drink some water at room temperature. You will feel the water at room temperature seems hotter than the usual tap water. The explanation for this effect is the same as that in the experiment above.

In order to give an accurate measurement of how hot or cold something is, we can use a thermometer.