

Temperature sensing experiment

Collect the materials:

Collect three tubs or bowls that you can fit a hand in.

To one tub add warm water - from the hot tap. Add a little boiled water from the kettle to make it as warm as possible without being too hot to touch.

To the second tub, add medium, or room temperature water. Use a mix of warm and cold water, or water that has been left out for a while.

To the third tub, add cold water and a couple of ice cubes, to make it cold to the touch.

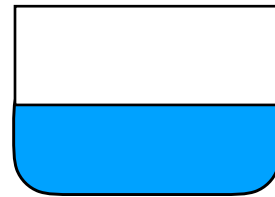
Line up the tubs like this:



Warm water



Medium water



Cold water

Do the experiment:

- Put a hand in the warm water for 30 seconds to a minute, then move it into the medium water. What do you feel? Does it feel warm or cold?
- Now put a hand in the cold water for 30 seconds to a minute, then move it into the medium water. What do you feel? Does it feel warm or cold?
- To really confuse your brain, put one hand in the warm water and the other in the cold water at the same time, for 30 seconds to a minute. Then move them both into the medium water.

What's going on?

Temperature sensors in your hand (and all over your skin) can detect warm and cold, and send messages to your brain, telling you whether you are touching warm or cold. But after a while in one temperature, they stop sending messages - you "get used to" the temperature.

When you move to a new temperature, temperature sensors will tell your brain about the *change* in temperature. So if your hand was warmer before, medium water will feel cold. If your hand was cooler before, medium temperature will feel warm.

To confuse your brain, make one hand get used to warm water, and the other hand get used to cold water, before putting them both in medium water. They will be sending two different messages to the brain "it is warm!" and "it is cold!", and those different messages coming in at the same time make for an interesting feeling.

