

# Tricky Temperatures

## The Science Behind the Experiment – A Guide for Adults:

The reason behind this mismatch is called sensory adaptation. This is where the body becomes less sensitive to a stimulus due to constant exposure to that stimulus. Our hands are particularly prone to sensory adaptation. This is due to the huge amount of nerve endings they have to help them collect information about the way things feel. There are about 25,000 nerve receptors per square cm!

When your brain picks up on a new stimulus, in this case the icy cold water and the hot water, the brain cells begin to fire. However, if this stimulus remains constant (as it did when you held your hands in the water for up to 2 minutes) the brain cells begin to pay less attention to that stimulus. The hand that was placed in the hot water became less sensitive to heat and the hand placed in the cold water became less sensitive to the cold.

When the hands were then placed in the tepid water, the sensitivity to temperature of each hand had changed due to the temperature of the water they had previously been held in. The hand that had been held in cold water was now much less sensitive to the cold, making the tepid water feel much warmer. The hand that had been held in the hot water was much less sensitive to the heat, making the tepid water feel much cooler.

## Science Experiment

### Tricky Temperatures

Put one hand in the container on the left.

Put one hand in the container on the right.

Hold them there for at least 1 minute.

Now put both of your hands into the middle container.

Is the water in this container hot or cold?

