

# Feel the Heat

1. **Fill** three cups- one with hot water, one with room temperature water, and one with ice water.
2. **Grab** cup of hot water with one hand and cup of cold water with other hand. Hold for 60 seconds.
3. **After** 60 sec, grab cup of room temperature water with both hands. What do you feel with each hand?



## Common Sense

The sense of touch is part of the nervous system, controlled by **somatosensory receptors** in the skin specialized to feel pressure, vibrations, position, pain, temperature, and more. **Thermoreceptors** sense temperature. Cold receptors sense when the skin surface drops below 95°F, but there is no sensation below 41°F. Hot receptors sense above 86°F, but beyond 113°F, pain receptors take over. The highest concentration of thermoreceptors are in the face and ears.

## Hot and Cold

The sense of temperature comes from comparison of signals from hot and cold **thermoreceptors** on the skin surface. They do not perceive the exact temperature of an object. Instead, they sense relative temperature, or changes in skin temperature of a new object compared to the temperature the skin was already used to. The receptors adapt to a temperature and become desensitized, changing perception of hot and cold. This causes conflicting perceptions when a warm hand and cold hand touch the same object.

## NAVY NOTES



**Thermoregulation** is the ability to maintain normal body temperature in different environments. **Acclimatization** is a process of adapting to a new environment through physiological changes. When transferring to a hot climate, Navy personnel have an acclimatization period before participating in intensive exercise, allowing the body to adapt and better cope with heat stress.