Bowling is all physics and energy distribution. So it is actually one of the most science-y sports, because it literally is just a ball and a surface and objects to knock down.

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Energy in Everyday Life

Heat Flow

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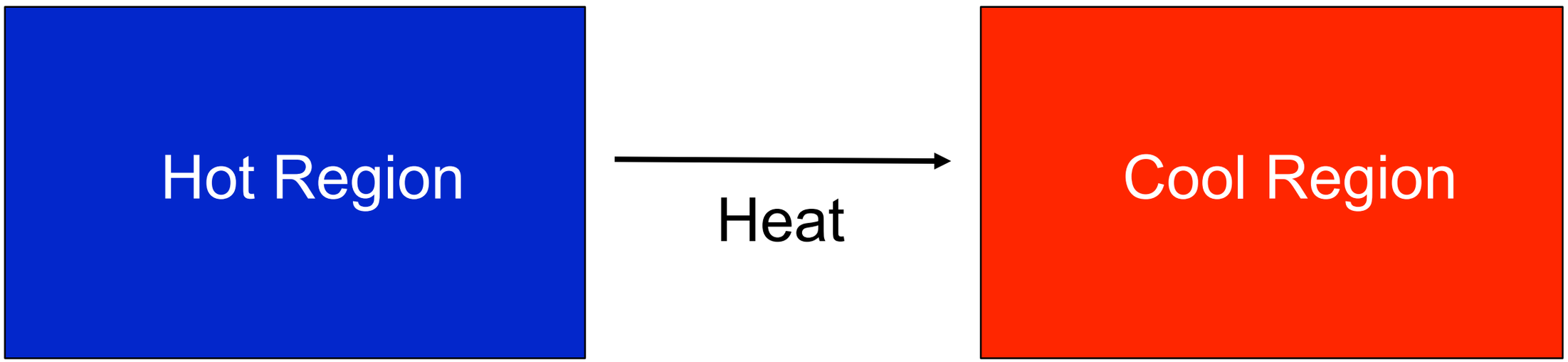
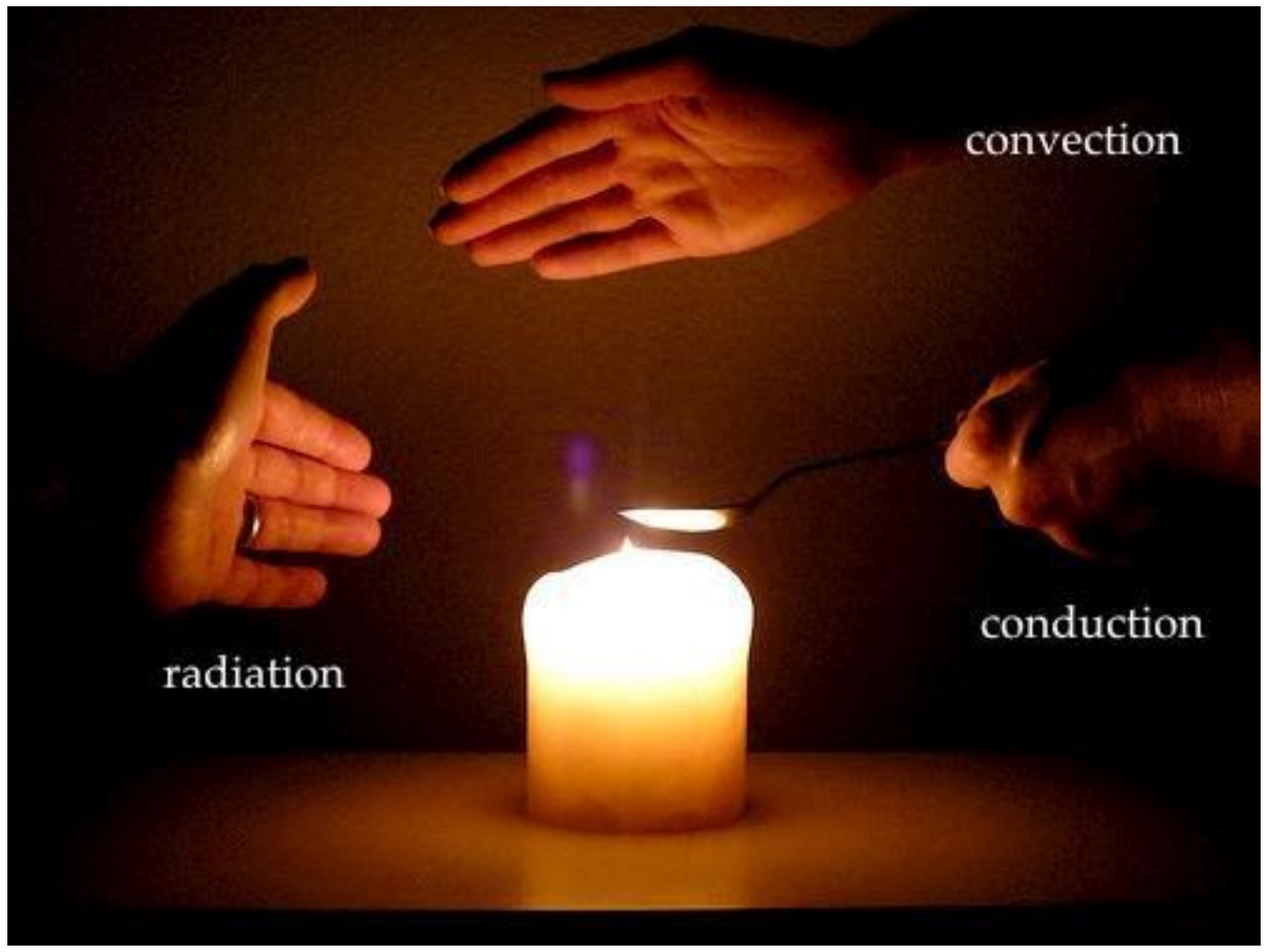
Heat is the transport of energy from a substance of high temperature to one of low temperature.



Heat always refers to energy in transit.

Heat has units of energy.

Energy is transported by 3 processes: conduction, radiation, and convection.



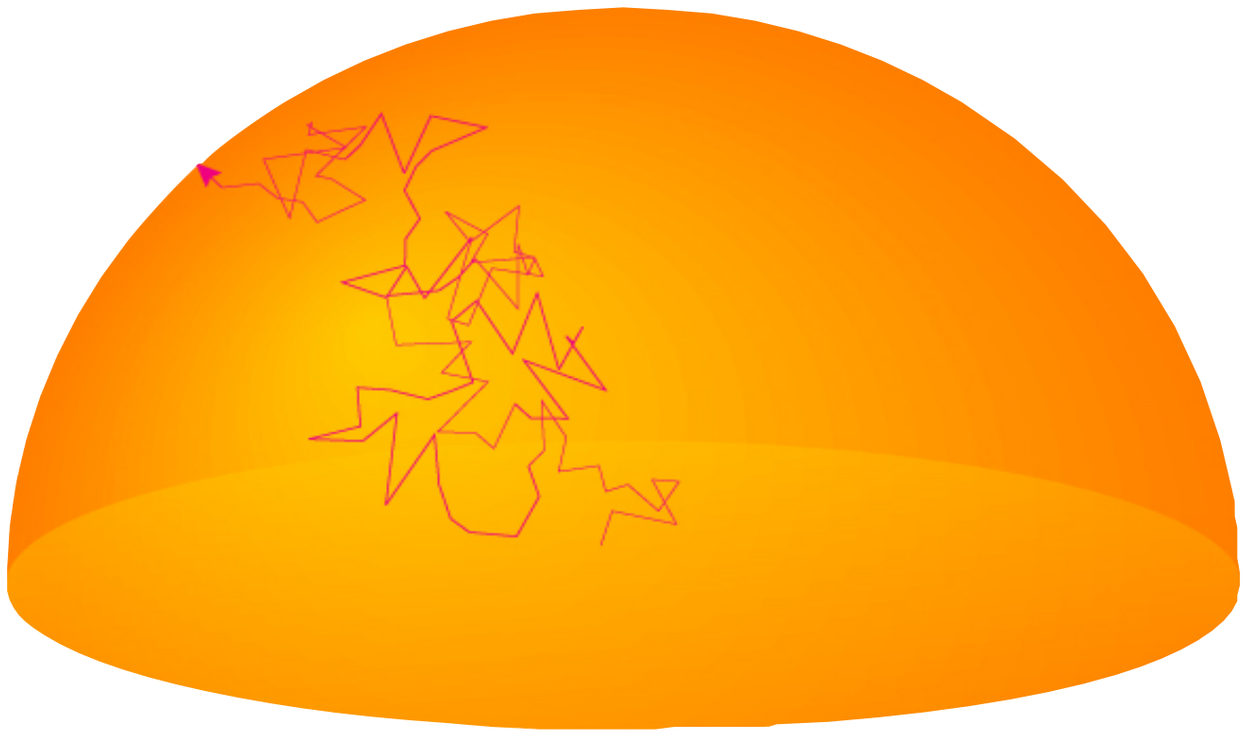
Conduction transports energy by collisions between neighboring atoms or molecules.

If you hold a spoon in a candle flame, energy in the form of increased speed among the molecules in the spoon is transported molecule to molecule up the handle, until the molecules of metal under your fingers begins to move faster and you sense heat.

Radiation transports energy by the flow of photons.

Radiation is how energy is transported through the Sun's inner regions. One gamma-ray photon produced in the Sun's core by nuclear fusion reactions takes about 1 million years to reach the Sun's surface, where it emerges as roughly 1600 visible light photons.

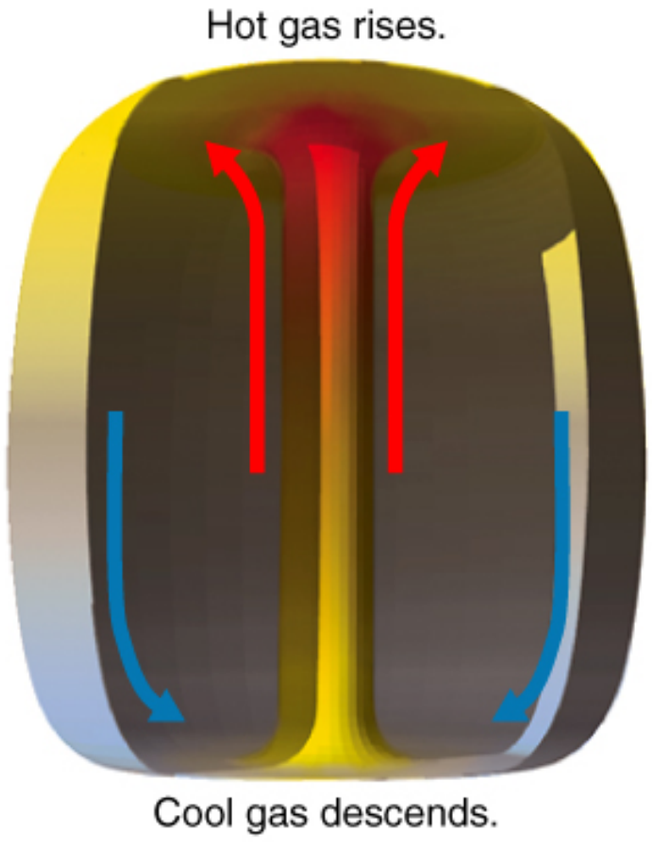
You feel these photons as heat from the Sun.



Convection transports energy by the bulk motion of material.

Put a pot of water on a stove. At first, conduction transports energy through the water. As the temperature rises, conduction cannot carry all the energy being input. The water begins to churn, to boil, to convect.

Hotter water at the bottom rises into the cooler water near the top and deposits its energy. The now cooled water descends back into hotter water, gaining energy.



When you cool a drink using ice, heat flows from the drink into the ice (so the drink's temperature falls).

But the temperature of the ice does not rise, it stays at 32 °F. The energy goes into breaking the chemical bonds between water molecules to melt the ice to form water.