

Unit 2: Heat and Energy in the Earth's Systems

L1: Hot or Not?

Guiding Question: How can we use heat transfer to explain phenomena we encounter in our lives?

- **Do Now:** You leave a metal spoon in a pot of boiling water with noodles in it (you are in charge of dinner). You go back to stir and you burn your hand on the spoon. Explain what happened scientifically using heat, the pot of water, spoon, and your hand.

Notes

- Thermodynamics is the study of how energy moves between different substances.
- Heat moves from areas of high concentration (lots of heat or very hot) to areas of lower concentration (little heat or cold).

Notes

- An ***exothermic*** process has heat (energy) leaving (exo=exit) the system or substance and going into the surroundings
- Ex. The hand warmer is exothermic because the reaction inside releases heat from the molecules (system) and it warms your hand (surroundings)

Notes

- An *endothermic* process has heat (energy) going into (endo=into) the system or substance from the surroundings
- Ex. The hand boiler is endothermic because your hand (surroundings) heats up the liquid and air inside (system) causing the liquid to boil.

Notes

- **Conduction** occurs when heat is transferred between two solids of different temperatures. Heat moves from the warmer object to the cooler object.
 - Ex.
- **Convection** occurs when heat is transferred from one place to another by the movement of fluids.
 - Ex.
- **Radiation** occurs when heat is transferred through empty space by **thermal radiation** and requires no contact between objects.
 - Ex.

Closure

- Homework 4 Due Friday
- Socratic Seminar Writing Assignment Due Friday