

LINCOLN PUBLIC SCHOOLS
Science Learning Expectations: Grade 7

Strand:

Physical Science

**Mass Standard
PS14**

Recognize that heat is a form of energy and that temperature change results from adding or taking away heat from a system.

See also: PS15, PS16, ES3 and ES4 and Inquiry Standards

Big Ideas

- ❑ Thermal energy is transferred through materials by the collisions of atoms within the materials.
- ❑ Heat is the energy in transit from an area of higher temperature to an area of lower temperature.
- ❑ Heat moves in a predictable flow from warmer objects to cooler objects until the objects are at the same temperature.

Key Outcomes

- ❑ Students will demonstrate an understanding that **thermal energy can be transferred through currents in air, and water** by designing an insulated container and testing its thermal capacity.

Essential Knowledge and Skills

Students will know and/or be able to:

- ❑ Heat moves by conduction, convection, and radiation.
- ❑ Thermal energy moves from substances with warmer temperatures to substances with cooler temperatures.
- ❑ Describe how insulators and conductors affect heat transfer.
- ❑ Distinguish between heat energy (the total amount of kinetic energy contained in the particles of a substance) and temperature (the average kinetic energy of a substance).