Connecting to the *Next Generation Science Standards* (NGSS Lead States 2013)

Standard: HS-PS3 Energy	
Performance Expectation: Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motion of particles (objects) and energy associated with the relative positions of particles (objects).	
Dimensions	**Classroom Connections**
Science and Engineering Practices Developing and Using Models • Develop and use a model based on evidence to illustrate the relationships between systems or between components of a system. Using Mathematics and Computational Thinking • Create a computational model or simulation of a phenomenon, designed device, process, or system.	Students construct computational models of the evaporative cooling process that addresses "Why do I feel colder when I am wet then when I am dry?" based on evidence collected in a series of investigations.
Disciplinary Core Ideas PS3.A: Definitions of Energy • Energy is a quantitative property of a system that depends on the motion and interactions of matter and radiation within that system. • These relationships are better understood at the microscopic scale, at which all of the different manifestations of energy can be modeled as a combination of energy associated with the motion of particles and energy associated with the configuration (relative position of the particles). PS1.A: Structure and Properties of Matter • The structure and interactions of matter at the bulk scale are determined by electrical forces within and between atoms.	Students conduct a series of investigations that demonstrate how energy associated with the motion of particles (thermal and kinetic energy) is used to drive the process of evaporation where fast-moving particles (with high kinetic energy) can overcome the intermolecular force (IMF) holding them within the liquid to become gaseous particles that have higher potential energy.
Crosscutting Concepts Energy and Matter • Energy cannot be created or destroyed—only moves between one place and another place, between objects and/or fields, or between systems. Systems and System Models • Models (e.g., physical, mathematical, computer models) can be used to simulate systems and interactions—including energy, matter, and information flows—within and between systems at different scales.	Students construct computational models using systems thinking and computational thinking that demonstrate how the thermal energy of skin is transferred to the kinetic energy of the liquid particles, which is in turn transferred to the potential energy of gas particles through the process of evaporation.

Connections to the *Common Core State Standards* (NGAC and CCSSO 2010)
ELA CCSS.ELA-LITERACY.SL.11-12.5 Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.
Mathematics MP. 2 Reason abstractly and quantitatively MP. 4 Model with mathematics