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

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| **Standard**  MS-PS3: Energy  The chart below makes one set of connections between the instruction outlined in this article and the NGSS.  Other valid connections are likely; however, space restrictions prevent us from listing all possibilities. | |
| **Performance Expectations**  MS-PS3-1. Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object. | |
| **Dimensions** | **Classroom Connections** |
| **Science and Engineering Practices**  Analyzing and Interpreting Data: Construct, analyze and/or interpret graphical displays of data and/or large data sets to identify linear and non-linear relationships. | Students analyze and interpret data from their scatter plots of their mass and velocity investigations. |
| **Disciplinary Core Ideas**  PS3.A. Definitions of Energy:  Motion energy is properly called kinetic energy; it is proportional to the mass of the moving object and grows with the square of its speed.  PS3.A. Definitions of Energy:  A system of objects may also contain stored (potential) energy, depending on their relative positions. | Students will investigate the relationship between mass and velocity on kinetic energy and construct graphs to examine the relationships between these variables.  Students will investigate how the change in height of an object impacts the energy of the object. |
| **Crosscutting Concepts**  Scale, Proportion, and Quantity:  Proportional relationships among different types of quantities provide information about the magnitude of properties and processes. | Students compare the ratios of mass to kinetic energy and velocity to kinetic energy. |