

LINCOLN PUBLIC SCHOOLS  
Science Learning Expectations: Grade 6

**Strand:**  
Physical Science

**Mass  
Standard  
PS3**

Differentiate between potential and kinetic energy. Identify situations where kinetic energy is transformed into potential energy and vice versa.

See also: PS1, PS11 and PS12

**Big Ideas:**

- An object's motion can be described, measured and predicted and is the result of the effects of fundamental laws of motion and forces.
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**Key Outcomes:**

- Students will demonstrate an understanding that motion is a measurable quantity that depends on the observer's frame of reference and the interaction of forces (gravity & friction) by building a model that demonstrates how motion, forces and energy work together in producing potential and kinetic energy.
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**Essential Knowledge and Skills**

*Students will know:*

- An unbalanced force acting on an object changes its speed or direction of motion, or both.
- Energy takes many forms. These forms can be grouped into types of energy that are associated with the motion of mass (kinetic energy), and types of energy associated with the position of mass and with energy fields (potential energy).
- Graph and interpret distance versus time graphs for constant speed. Use the graphs to describe how the position of an object changes in a time interval.
- Give examples of objects at rest, and identify the forces that act on an object while it remains at rest (gravity, supportive forces, friction, other pushing or pulling forces). Explain that if the object is not moving, it must have at least two forces acting on it that are balanced.