## **Energy and Forces**

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During this unit, we will address the following Maine Learning Results: **D3h** Describe several different types of energy forms including heat energy, chemical energy, and mechanical energy

**D3i** Use examples of energy transformations from one form to another to explain that energy cannot be created or destroyed

**E2D** Describe how matter and energy change from one form to another in living things and in the physical environment.

...and take a stab at these new Next Generation science standards:

**MS-PS2-2**. Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object. **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.

**MS-PS3-2**. Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system. **MS-PS3-5**. Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.

## Key terms:

Energy	Mechanical energy	Energy conversion
Thermal energy	Potential energy	Kinetic energy
Balanced forces	Unbalanced Forces	Net Force
Friction	Law of Conservation of Energy	

## By the end of this unit, you should be able to...

- Give several examples of the Law of Conservation of Energy happening
- Provide evidence and reasoning to support the claim that when an object's kinetic energy changes, energy is transferred
- Describe the relationship between kinetic energy, speed and mass
- Describe the relationship between potential energy, height, and mass
- Give several examples of balanced and unbalanced forces
- Calculate net force on an object
- Conduct an investigation into how multiple forces affect an object's movement.

Communicate your findings as a lab report.