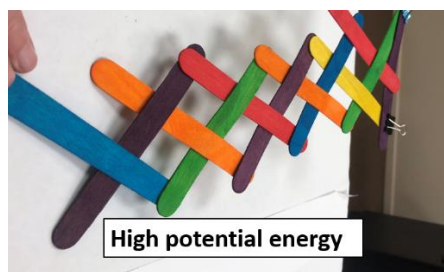


Converting Your Potential (Energy)

While **matter** is the stuff of the universe of which all things are made, **energy** provides the ability to move or change matter. In other words, energy provides the ability to do work on the stuff of the universe. While energy comes in many different forms, the two fundamental types of energy are potential energy and kinetic energy.

The **potential (stored) energy** of an object is the energy that the object has due to its **position**. Types of potential energy include gravitational potential energy, magnetic potential energy, and elastic potential energy. A large round rock on the top of a hill is loaded with gravitational potential energy. Bent craft sticks waiting to be launched are loaded with elastic potential energy.



The **kinetic energy** of an object is the energy that an object has due to its **motion**. Any object that is moving contains some kinetic energy. A baseball flying through the air, a car speeding down the highway, and a fish swimming through the water all possess kinetic energy. The faster an object moves, the more kinetic energy it has.



One of the coolest things about energy is that it can change from one form to another within a system. If the power goes out in your home, the potential energy in a battery can be converted into light energy for a flashlight. Similarly, the chemical energy from gasoline can be converted into kinetic energy to power your car down the road.

In this **STEM Challenge**, your first task is to build a system that is high in stored elastic potential energy. Your second task is to initiate a change so that the stored energy can be converted into kinetic energy in a demonstrable (and perhaps useful) manner.