LIGHTNING REACTION
"Electrical Energy"

Electrical energy is the energy carried by moving electrons. All matter consists of atoms, and every atom contains one or more electrons, which are always moving. When electrons are forced along a path in a conducting substance such as a wire, the result is energy called ELECTRICITY.

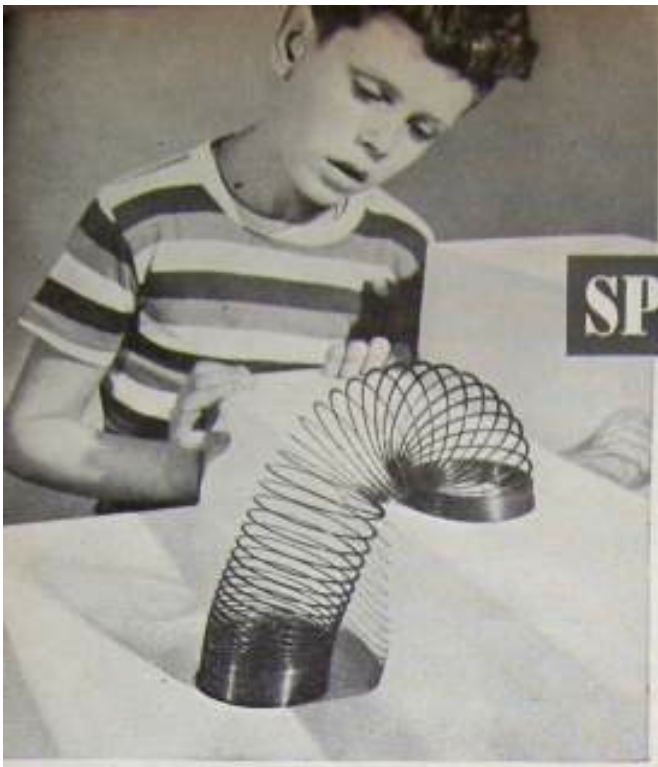
Electrical energy is widely used because it is easily transmitted by wires to the place where it is needed. It can be changed into other forms of energy by electric lights, computers, hair dryers, TV sets and lightning reaction games ;)

SLINKY
"Elastic Energy"

Elastic potential energy is stored in elastic material as a result of their ability to stretch and compress. The amount of elastic potential energy stored in a spring is related to the amount of stretch in the device. As a spring stretched it stores the elastic potential energy. As the spring returns to its original shape the energy is released.

When the slinky is set in motion on a stepped platform such as a stairway, the slinky transfers the elastic energy along its length as its stretches and retracts as if it were somersaulting down one step at a time.

"SLINKY" SPRINGS to FAME



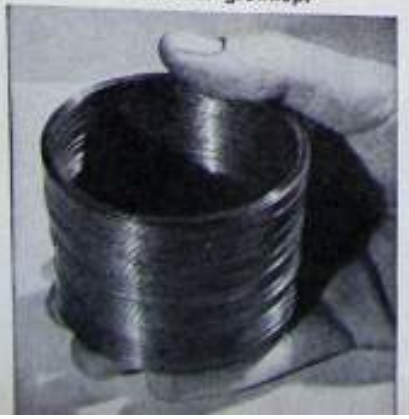
Given an initial shove, "Slinky" eerily and deliberately flip-flops end over end down a flight of steps. It is simply a spring, but it does stunts that made R. P. James, Philadelphia engineer, think of converting it into a toy.

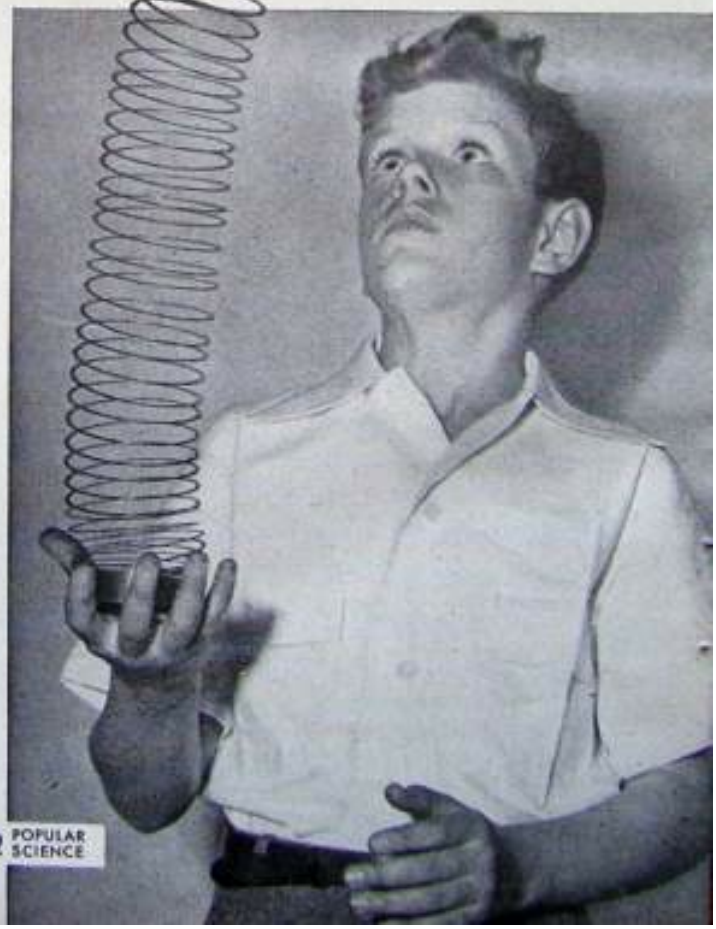
"Slinky" goes places when, with a flick of the wrist, it leaps out into space like a striking serpent. Much of its action depends on the ingenuity of its handler.

Produced in one small plant in Philadelphia, 100,000 of the springs sold so rapidly that the promoter had to subcontract to other plants in a number of cities.

The flat-coiled strip of Swedish blue steel assumes shapes in almost unending patterns. Mr. James got his toy idea when he saw the spring roll off a workbench and do funny antics on the floor.

Inert, "Slinky" (below) is a handful of spring before wriggling into its giddy gyrations for child or grownup.





CANDLE
"Chemical Energy to Light and Heat Energy"

All molecules, whether a solid, liquid or a gas have chemical bonds that store energy. The way that atoms attach to each other to form molecules is called bonding. These bond between atoms store energy.
The unlit candle wax stores the chemical energy. As you light the wick of the candle, this stored chemical energy is released as heat and light energy.

Can you think of other forms of chemical energy? HINT: you had chemical energy for breakfast, lunch and dinner.

SOUND VIDEO
"Sound Energy"

Watch and learn about sound
From

http://studyjams.scholastic.com/studyjams/jams/science/energy-light-sound/sound.htm

Don't forget to listen!!

NEWTON'S CRADLE "Gravitational Potential Energy"

Gravitational potential energy is the potential energy that an object has because of its height and mass. The higher an object is, the more gravitational potential energy it has. As you lift the ball up, its gravitational potential energy increases. As the ball is released, this gravitational potential energy decreases as it is converted to kinetic energy. This kinetic energy is then transferred from one ball to the next as it hits its neighbour. See what happens as you increase and decrease the Gravitational potential energy of the first ball.

SOLAR RACER
"Light Energy to electrical energy"

Light energy from the sun, also called SOLAR ENERGY is used by plants in the process of photosynthesis to make food.

Solar energy is also used to produce electrical energy

Electricity can be produced directly from photovoltaic, PV, cells. (Photovoltaic literally means "light" and "electric.")

These cells are made from materials which exhibit the "photovoltaic effect" i.e. when sunshine hits the PV cell, the photons of light excite the electrons in the cell and cause them to flow, generating electricity.

RADIOMETER
"Heat and Light Energy"

You will notice the wings of the radiometer are alternately dark and light in colour. When the light transfers heat to each one, the lighter wings reflects the heat, and the dark wings absorb the heat.
As the atoms of energy strike the dark wings, they 'kick' away at extremely fast speeds. Whereas, the atoms that strike the light wings bounce away with small amounts of energy. This difference causes the wings to spin!

If the light was stronger, therefore providing more heat energy, would the radiometer spin faster?

HAND BOILER
"Heat Energy"

Heat Energy is the energy that an object has because of its temperature. The hotter an object is, the more energy it has. Heat energy moves from a hotter object to another.

Place the boiler in the palm of your hand. What happens?

The heat energy from your hand transfers through the glass boiler, causing the gas inside the glass to expand enough to move the liquid up to the top bulb.

TRY: Warming your hands by rubbing them together. Does the liquid move faster?