## **Text for Teaching Energy**

## **What is Energy?**

You cannot always see energy, touch it or hold it in your hand, but energy is everywhere.

Energy is the ***ability to do work***.  It is what **makes matter move or change**.

Energy helps you walk across the street, throw a ball into the air, vacuum your house, watch television and ride the bus to school. Some of the above are possible because we have figured out how to convert energy from one form into another and use it to do our work.

### Types of energy

There are many types of energy, but they can be categorized into 2 types:

* **Potential energy**

The amount of energy something has **stored** inside it. Anything can have potential energy. A battery has potential energy stored by a difference in ionic concentration; even you have potential energy, as you sit in your chair. How much potential energy you have depends on a few things, including how high up you are and how big you are.

* Kinetic energy

Kinetic energy is the energy of an object in motion. Anything that is **moving** has kinetic energy. Mechanical objects, such as a clock or a person on a skateboard, have kinetic energy, but so do light, sound, wind and water.

**Potential Energy has 4 forms:**

1. ***Chemical energy*** –  the energy stored in the bonds between atoms that holds molecules together
2. ***Nuclear energy*** – the energy stored in the nucleus of the atom that holds the nucleus together
3. ***Gravitational energy*** – the energy an object has because of its position or height
4. ***Elastic energy*** – or stored mechanical energy, is energy stored in an object by the application of force

### ****Kinetic Energy has 5 forms:****

1. ***Mechanical energy*** –  or motion, is the movement of objects or substances from one place to another
2. ***Electrical energy*** – the energy from flow of electric charge (movement of electrons in one direction)
3. ***Thermal energy*** – or heat energy, the internal energy of a substance due to the vibration of atoms and molecules making up the substance
4. ***Radiant energy*** – or light energy, or electromagnetic energy that travels in transverse waves
5. ***Sound energy*** – the movement of energy through substances in the form of compression waves