



Forms of Energy

What is energy?

- Ability to do work or cause change
- Produces Warmth
- Produces Light
- Produces Sound
- Produces Movement
- Produces Growth
- Powers Technology



Classes of Energy

POTENTIAL

Stored energy
or energy of
position

Gravitational, Stored
Mechanical, Nuclear,
Chemical

KINETIC

Energy of
motion

Motion, Electrical,
Sound, Radiant,
Thermal

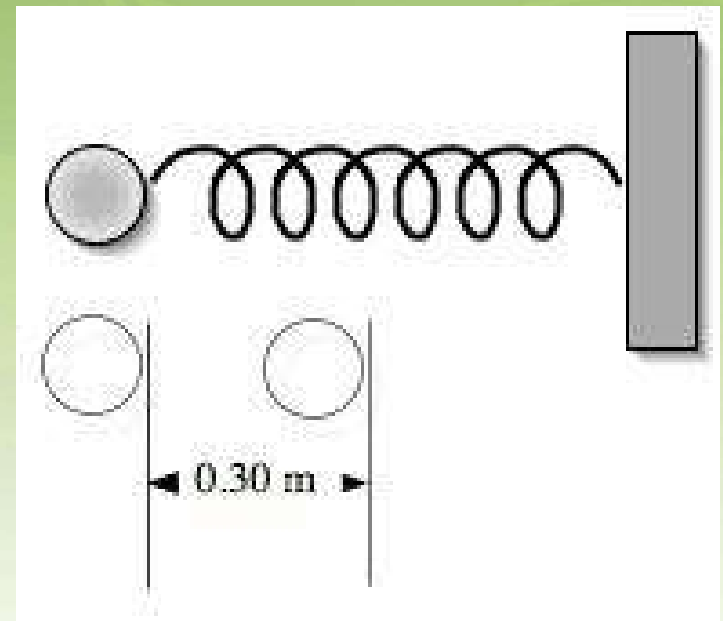
Potential Energy

Gravitational Energy –
energy an object or
substance has because of
its position
Anything “up high”



Potential Energy

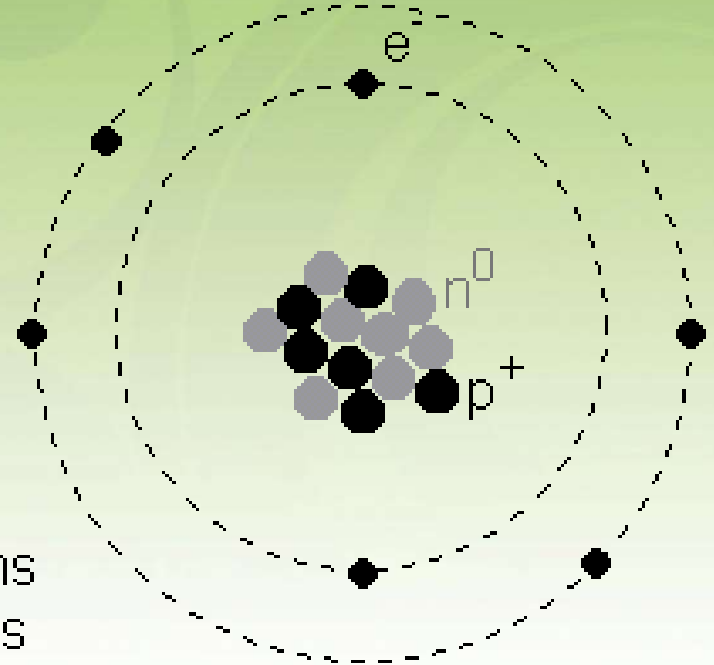
Stored Mechanical Energy – stored in an object by the application of force
Must push or pull on an object



Potential Energy

Nuclear Energy –
energy stored in the
nucleus of an atom
Holds the atom together

$^{14}_6\text{Carbon}$



6 protons
6 electrons
8 neutrons

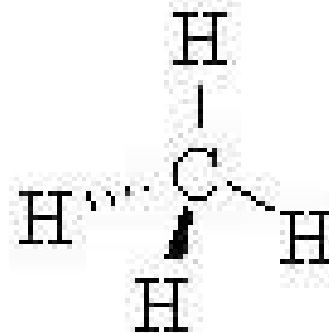
Potential Energy

Chemical Energy –
energy stored in the
bonds between atoms

Holds molecules
together



Molecular
Formula



Perspective
Drawing

Kinetic Energy

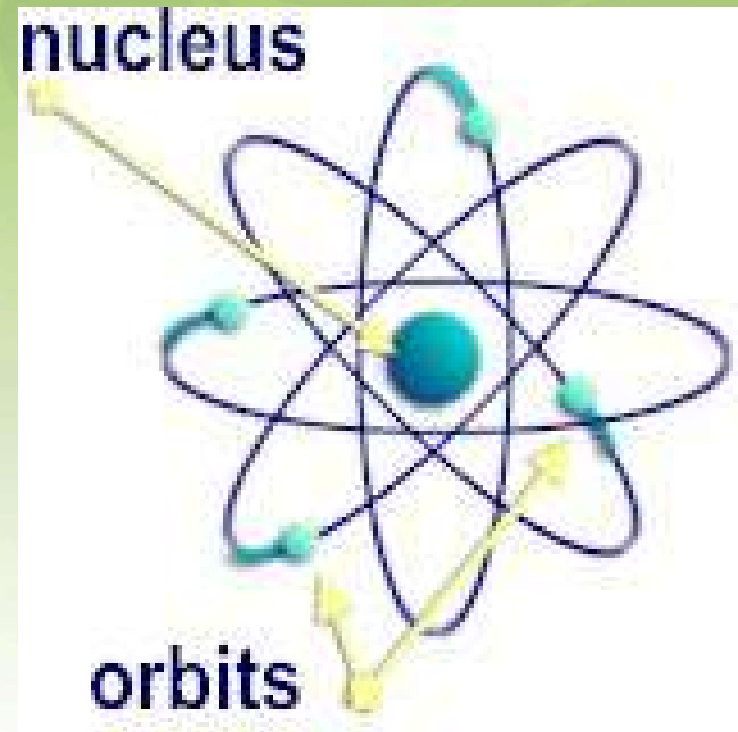
Mechanical (Motion)
Energy – movement of
objects or substances
from one place to another



Kinetic Energy

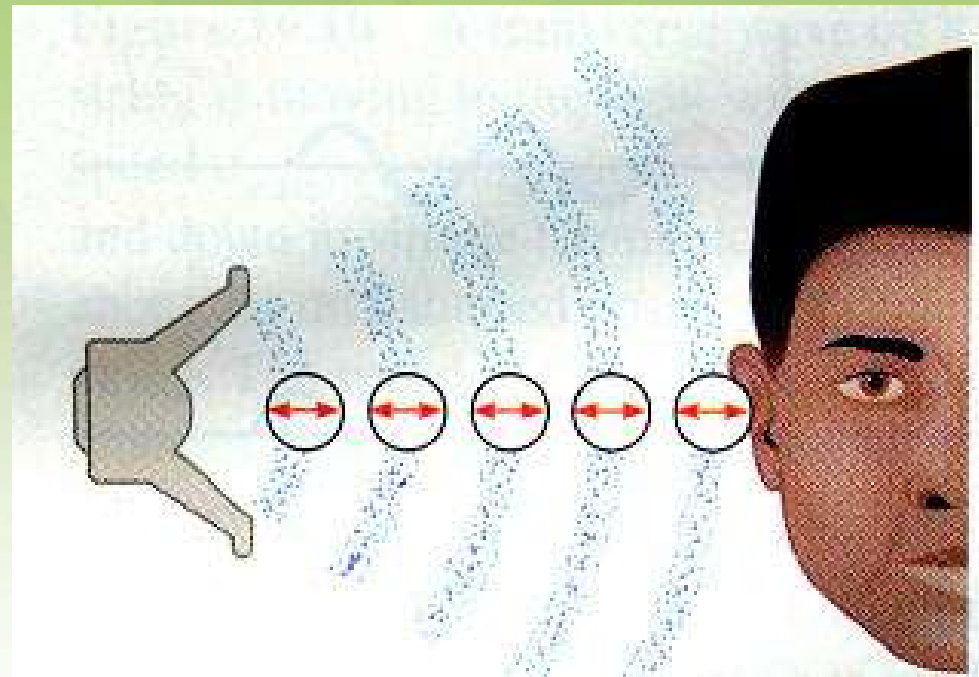
Electrical Energy –
movement of electrons

NOT AN ELECTRON
PARADE!



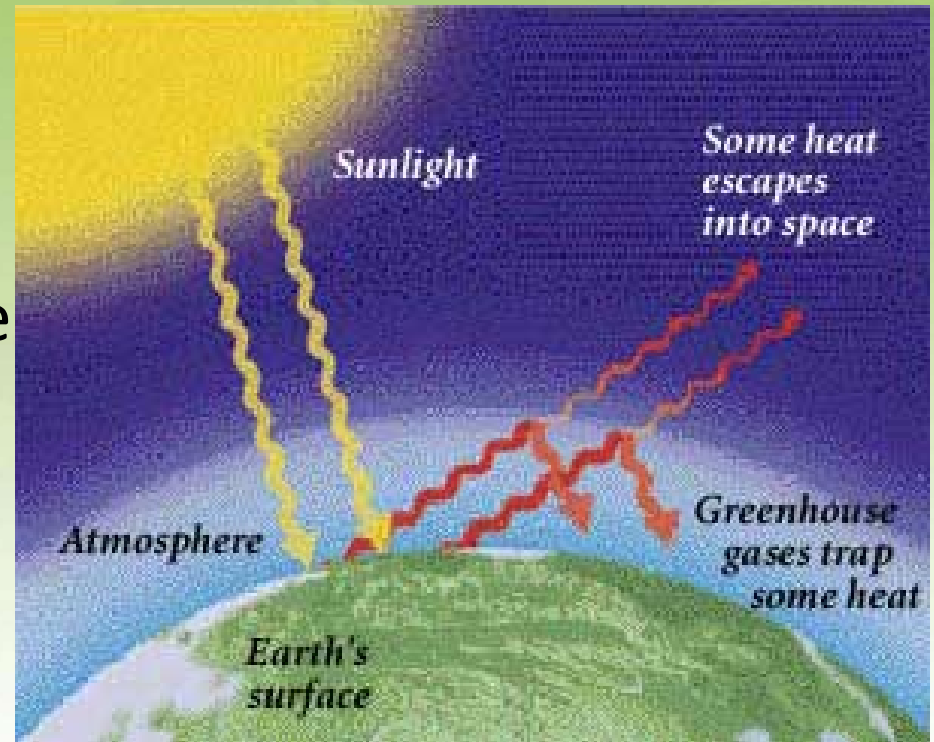
Kinetic Energy

Sound Energy –
movement of energy
through substances
in the form of
longitudinal/compre
ssion waves



Kinetic Energy

Radiant Energy –
electromagnetic energy
that travels in transverse
waves



Kinetic Energy

Thermal (Heat) Energy

– internal energy of a substance due to the vibration of atoms and molecules making up the substance



Energy Transfers

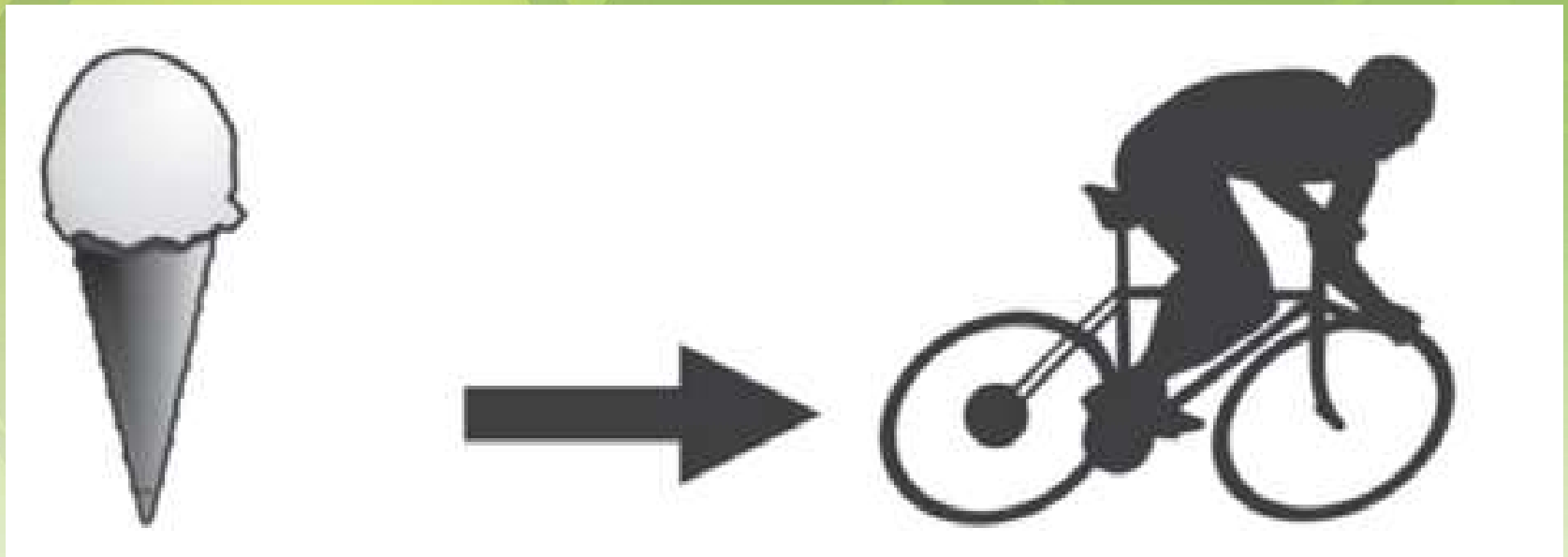
1 – Energy can not be created nor destroyed, only changed.

- Law of Conservation of Energy

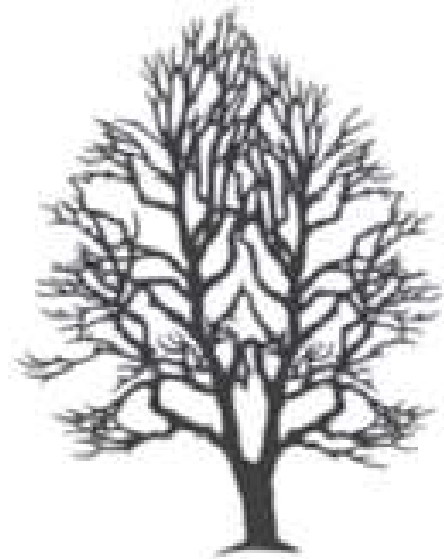
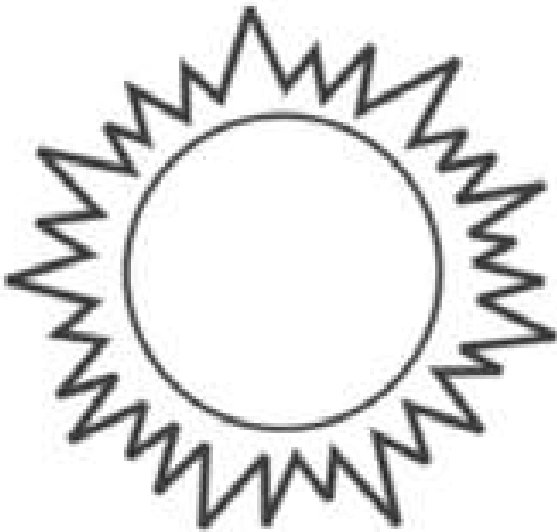
- First Law of Thermodynamics

2 – Energy will always transfer from high to low.

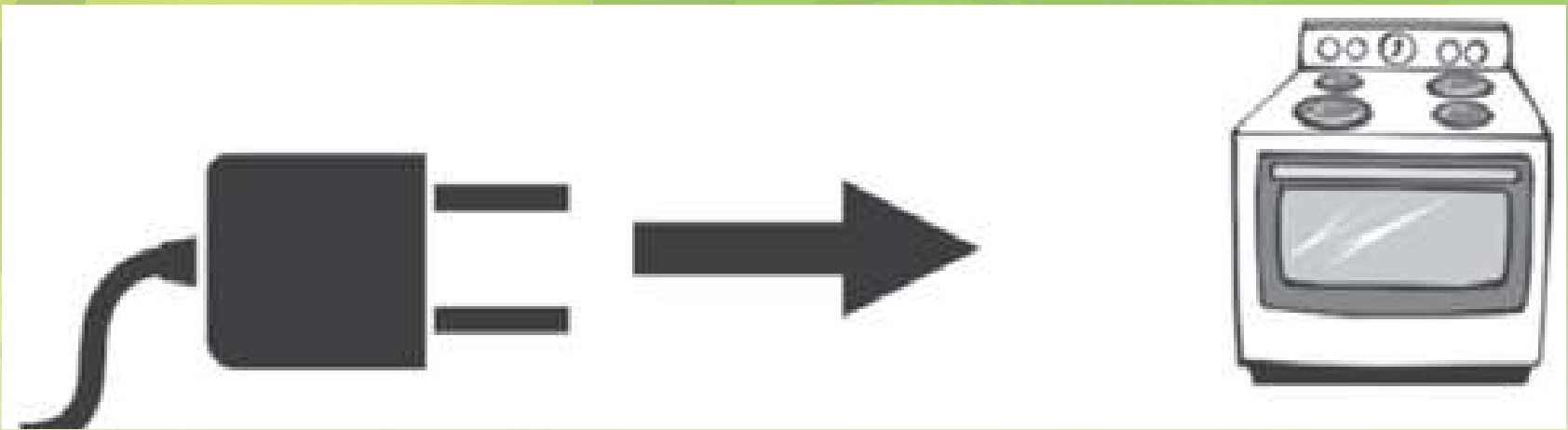
3 – No energy transfer is 100% efficient.



Name the Transfer



Name the Transfer



Name the Transfer



Name the Transfer

In Review

- Energy does work or causes change.
- Two main classes of energy: potential and kinetic.

- Potential Energy – stored energy or energy of position
- Gravitational, Stored Mechanical, Nuclear, Chemical
- Kinetic Energy – energy of motion
- Motion/Mechanical, Electrical, Sound, Radiant, Thermal/Heat
- Energy can not be created nor destroyed, only changed.
- Energy always transfers from high to low.
- Energy transfers are never 100% efficient.