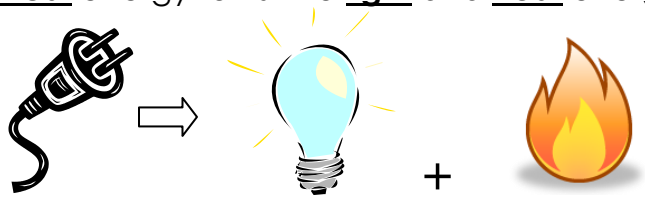
Name _____

ENERGY CHANGES

Energy can be transformed into another sort of energy. But it cannot be created AND it cannot be destroyed. Energy has always existed in one form or another. This is called the **Law of Conservation of Energy**.

When you turn on a lamp, not all of the electricity flowing through the filament is converted into light. This may lead you to think that energy is lost. According to the Law of conservation of energy, this cannot be true. So what happens to that energy? What would it feel like if you touched a light bulb? HOT! Some of the energy flowing into the lamp is converted into heat. Even though heat is not useful for the lamp, it is still a form of energy.

Electrical energy turns into **light** and **heat** energy in a light bulb.



ENERGY IS NEVER LOST. Scientists have found that even when energy is converted from one form to another, no energy is gained or lost in the process.

The car or bus, which brings you to school, gets its energy from gas and a battery. The gas stores **chemical energy** and the battery stores **electrical**

The engine changes this **chemical energy** and **electrical energy** into different types of energy.

What happens when a car or bus is started? What do you hear, see, smell and feel?

When the engine starts, we switch on the radio or beep the horn, we can hear it. This is **sound energy.**

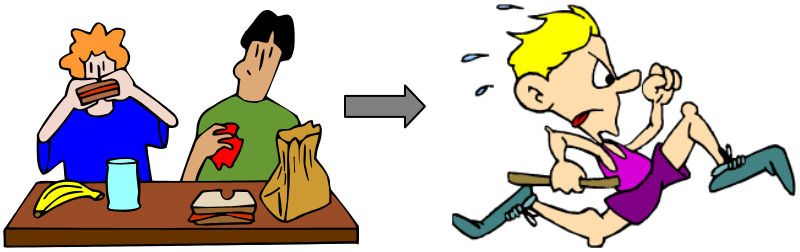
When it is dark we switch on the head-lights. This is light energy.

After the car has been running for a while the engine/ hood becomes warm. This is **heat energy.** Heat energy is always produced when things work. When you run, you get hot.

When we drive, the car is moving. This is mechanical energy.

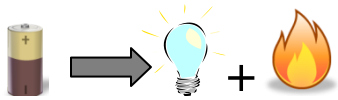
When we eat, our bodies transform the energy stored in the food into energy to do work. When we run or walk, we "burn" food energy in our bodies. When we think or read or write, we are also doing work. Many times it's really hard work!

We EAT food that our bodies turn into stored energy to use when we RUN.



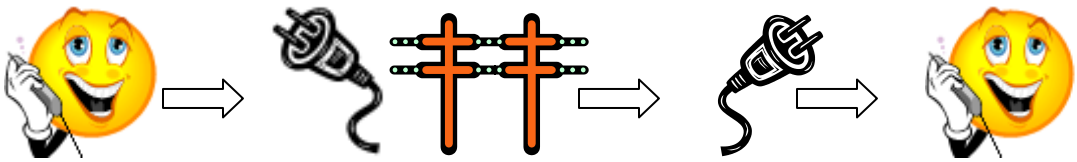
Energy cannot be created or destroyed it just changes from one type of energy to another. This is also called ENERGY TRANSFER. Here are some more examples of energy transfer:

- Stored **chemical** energy in a flashlight's batteries becomes **light** and **heat** energy when the flashlight is turned on.



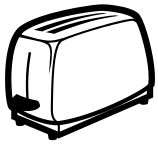
- Food is stored energy. It is stored as a **chemical** with **potential** energy. When your body uses that stored energy to do work, it becomes **kinetic** energy. If you overeat, the energy in food is not "burned" but is stored as **potential** energy in fat cells.

- When you talk on the phone, your voice (**sound** energy) is transformed into **electrical** energy, which passes over wires (or is transmitted through the air). The phone on the other end changes the **electrical** energy back into **sound** energy through the speaker.



- A car uses stored **chemical** energy in gasoline to move. The engine changes the **chemical** energy into **heat** and **kinetic** energy to power the car. Cars, planes, light bulbs, boats and machinery also transform energy into work

ENERGY TRANSFERS: As already said, energy is constantly changing from one type into another. This is happening all around us and throughout the universe. Energy can change into Several Types-Check out these examples!

Object	Energy In	Energies Out
 Flashlight	Chemical (in the batteries)	Light
 Toaster	Electrical	Heat, Light

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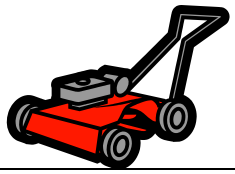
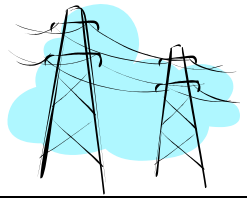
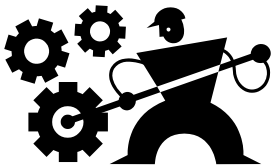
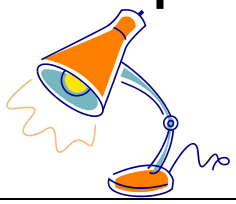
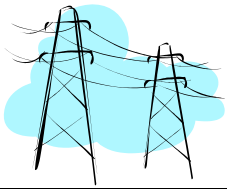
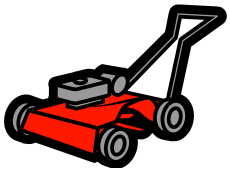
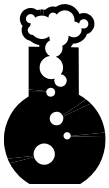
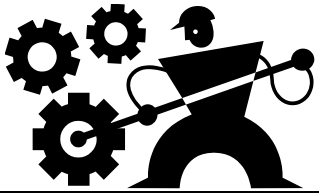
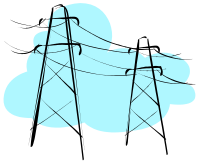
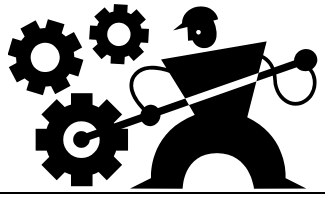
Name_____

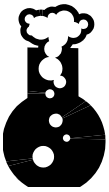
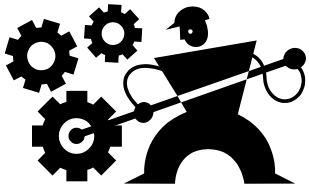
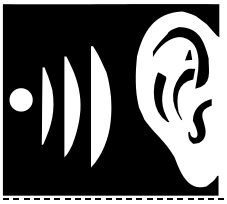
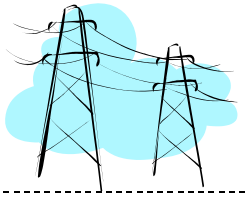
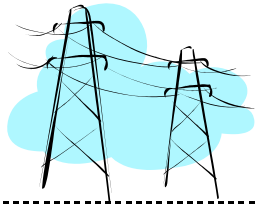
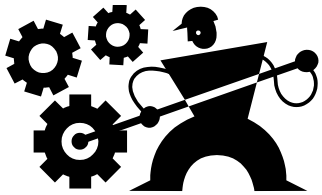
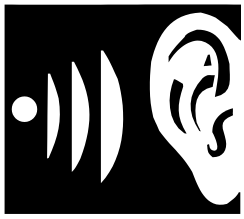
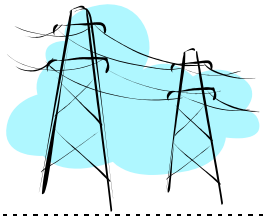
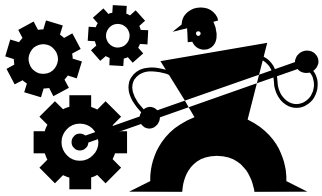
ENERGY CHANGES MATCH-UP

OBJECT	ENERGY IN	ENERGY OUT
Solar powered calculator 		
Piano 		
Lamp 		
Gasoline powered lawn mower 		
Whistling tea kettle 		
Fan 		

Name_____

ENERGY CHANGES MATCH-UP

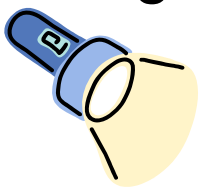
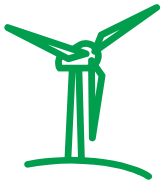
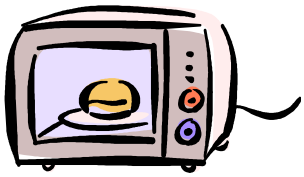
OBJECT	ENERGY IN	ENERGY OUT
Solar powered calculator 	LIGHT 	ELECTRICAL 
Piano 	MECHANICAL 	SOUND 
Lamp 	ELECTRICAL 	LIGHT 
Gasoline powered lawn mower 	CHEMICAL 	MECHANICAL 
Whistling tea kettle 	HEAT 	SOUND 
Fan 	ELECTRICAL 	MECHANICAL 

CHEMICAL 	HEAT 	MECHANICAL 
SOUND 	LIGHT 	ELECTRICAL 
ELECTRICAL 	LIGHT 	MECHANICAL 
SOUND 	ELECTRICAL 	MECHANICAL 

For Energy Match-up: Calculator, Piano, lamp, lawnmower, tea kettle, and fan

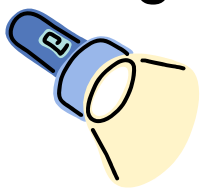
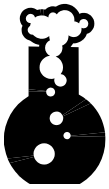
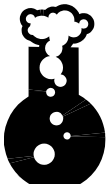
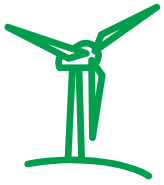
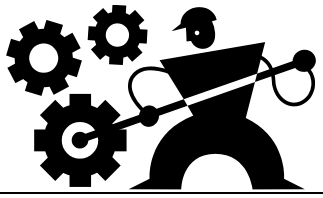
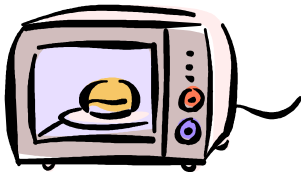
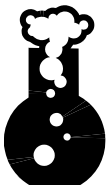
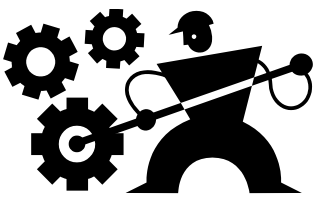
Name_____

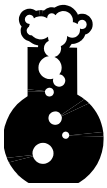
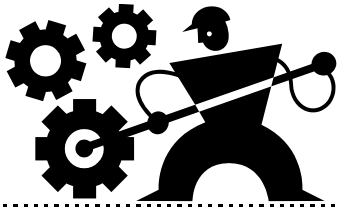
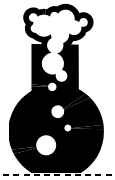
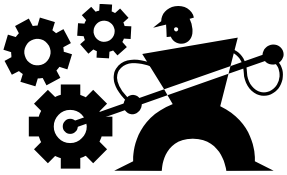
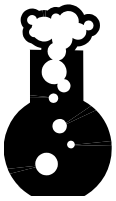
ENERGY CHANGES MATCH-UP

OBJECT	ENERGY IN	ENERGY OUT
Flashlight 		
Match 		
Windmill 		
Microwave 		
Ipod 		
Guitar String (being plucked) 		

Name_____

ENERGY CHANGES MATCH-UP

OBJECT	ENERGY IN	ENERGY OUT
Flashlight 	CHEMICAL 	LIGHT 
Match 	CHEMICAL 	HEAT 
Windmill 	MECHANICAL 	ELECTRICAL 
Microwave 	LIGHT 	HEAT 
Ipod 	CHEMICAL 	SOUND 
Guitar String (being plucked) 	MECHANICAL 	SOUND 

CHEMICAL 	HEAT 	MECHANICAL 
SOUND 	LIGHT 	ELECTRICAL 
CHEMICAL 	HEAT 	MECHANICAL 
SOUND 	LIGHT 	CHEMICAL 

For Energy Match-up: Flashlight, Match, Windmill, Microwave IPod, and Guitar String