

# TYPES OF ENERGY

Mechanical,  
Electromagnetic,  
Electrical,  
Chemical,  
Thermal

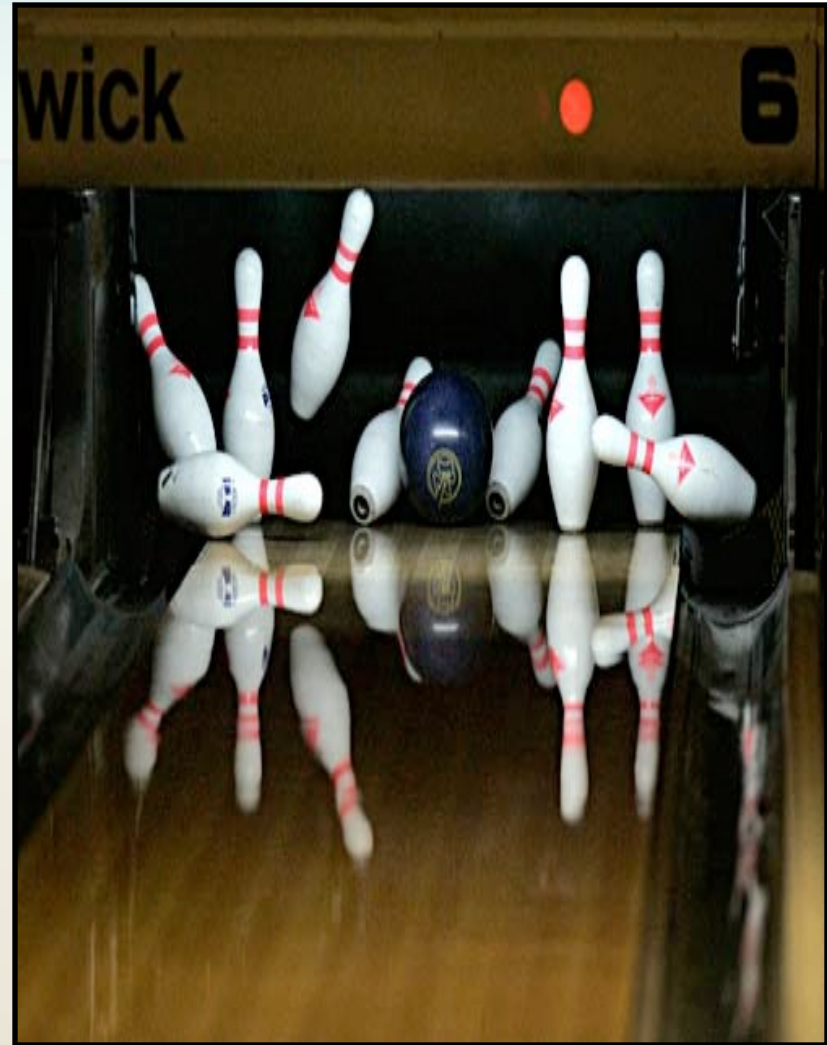


# What is Mechanical Energy?

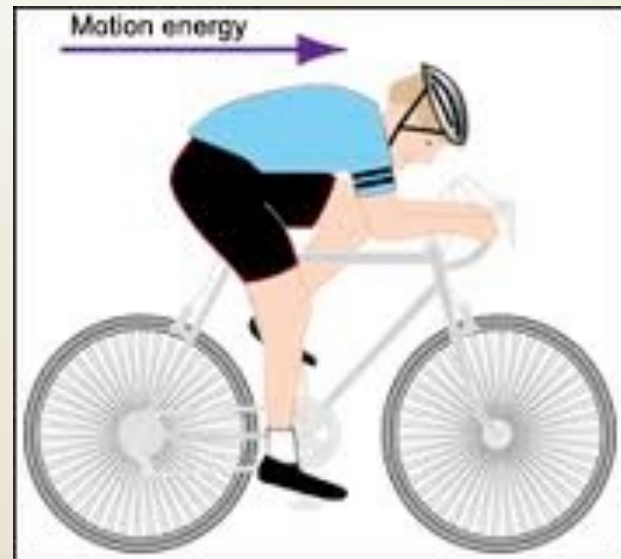
- o Energy due to a object's motion (kinetic) or position (potential).

The bowling ball has mechanical energy.

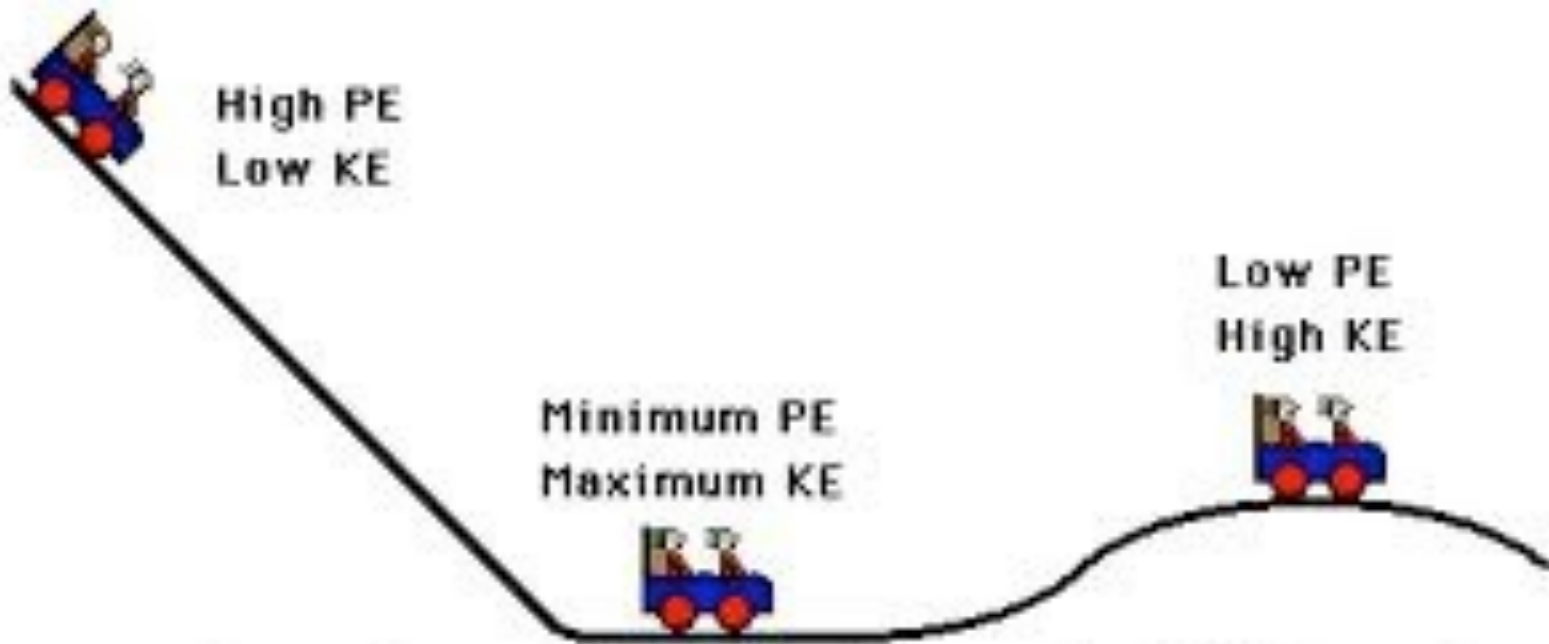
When the ball strikes the pins, mechanical energy is transferred to the pins!



# Examples of Mechanical Energy



- **Mechanical Energy can be potential or kinetic**



As a coaster car loses height, it gains speed; PE is transformed into KE. As a coaster car gains height it loses speed; KE is transformed into PE. The sum of the KE and PE is a constant.

# What is Electromagnetic Energy?



- Light energy
- Includes energy from gamma rays, xrays, ultraviolet rays, visible light, infrared rays, microwave and radio bands



# What is Electrical Energy?

- o **Energy caused by the movement of electrons**
- o **Easily transported through power lines and converted into other forms of energy**



# What is Chemical Energy?



- o **Energy that is available for release from chemical reactions.**

**The chemical bonds in a matchstick store energy that is transformed into thermal energy when the match is struck.**

# Examples of Chemical Energy





# What is Thermal Energy?

EXCITED  
"HOT"  
ATOM

Heat energy

- The heat energy of an object determines how active its atoms are.

A hot object is one whose atoms and molecules are excited and show rapid movement.

A cooler object's molecules and atoms will show less movement.

LAI D BACK  
"COOL"  
ATOM

FRIC TION INVOLVES THERMAL  
ENERGY



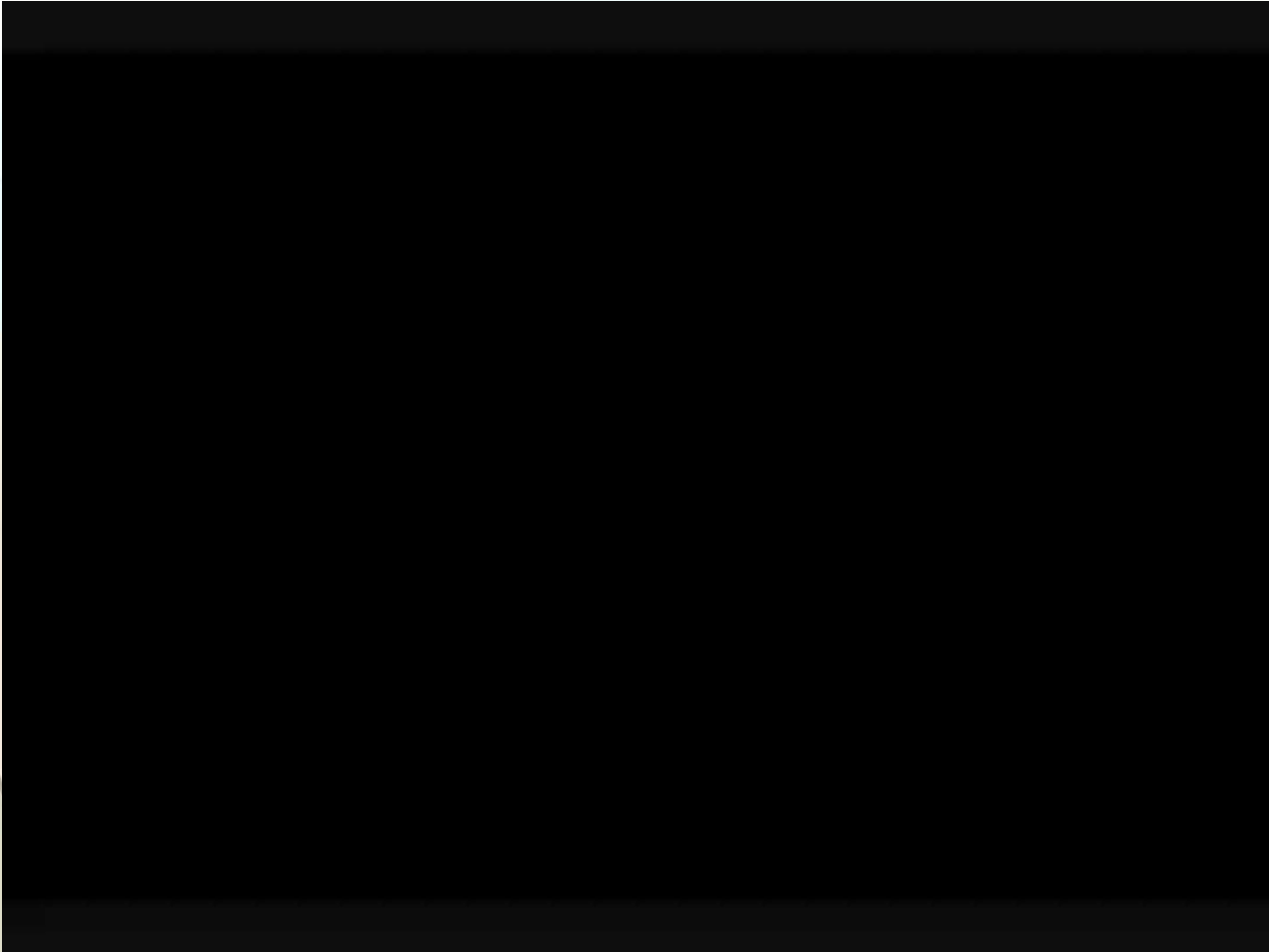
# Write in Books-- types of energy

- Mechanical,
- Electromagnetic,
- Electrical,
- **Chemical,**
- **Thermal**



- **Sketch or describe an example of each.**

Every transformation of energy involves energy “loss” to friction. Otherwise, you could create a perpetual motion machine.





# QUIZ TIME!

**What type of energy cooks food in a microwave oven?**

**ELECTROMAGNETIC ENERGY**



**What type of energy is the spinning plate inside of a microwave oven?**

**MECHANICAL ENERGY**



# QUIZ TIME!

**Electrical energy is transported to your house through power lines.**

**When you plug an electric fan to a power outlet, electrical energy is transform into what type of energy?**

**MECHANICAL ENERGY**



# QUIZ TIME!

What energy transformation occurs when an electric lamp is turned on?



**ELECTRICAL ENERGY**



**ELECTROMAGNETIC ENERGY**

# What types of energy are shown below?



**Mechanical and Thermal Energy  
(Don't forget friction)**



# What type of energy is shown below?



**Chemical Energy**

**What types of energy are shown below?**



**Electrical, Mechanical and  
Electromagnetic Energy**

**What type of energy is shown below?**



**Chemical Energy (yummy)**

**What type of energy is shown below?**

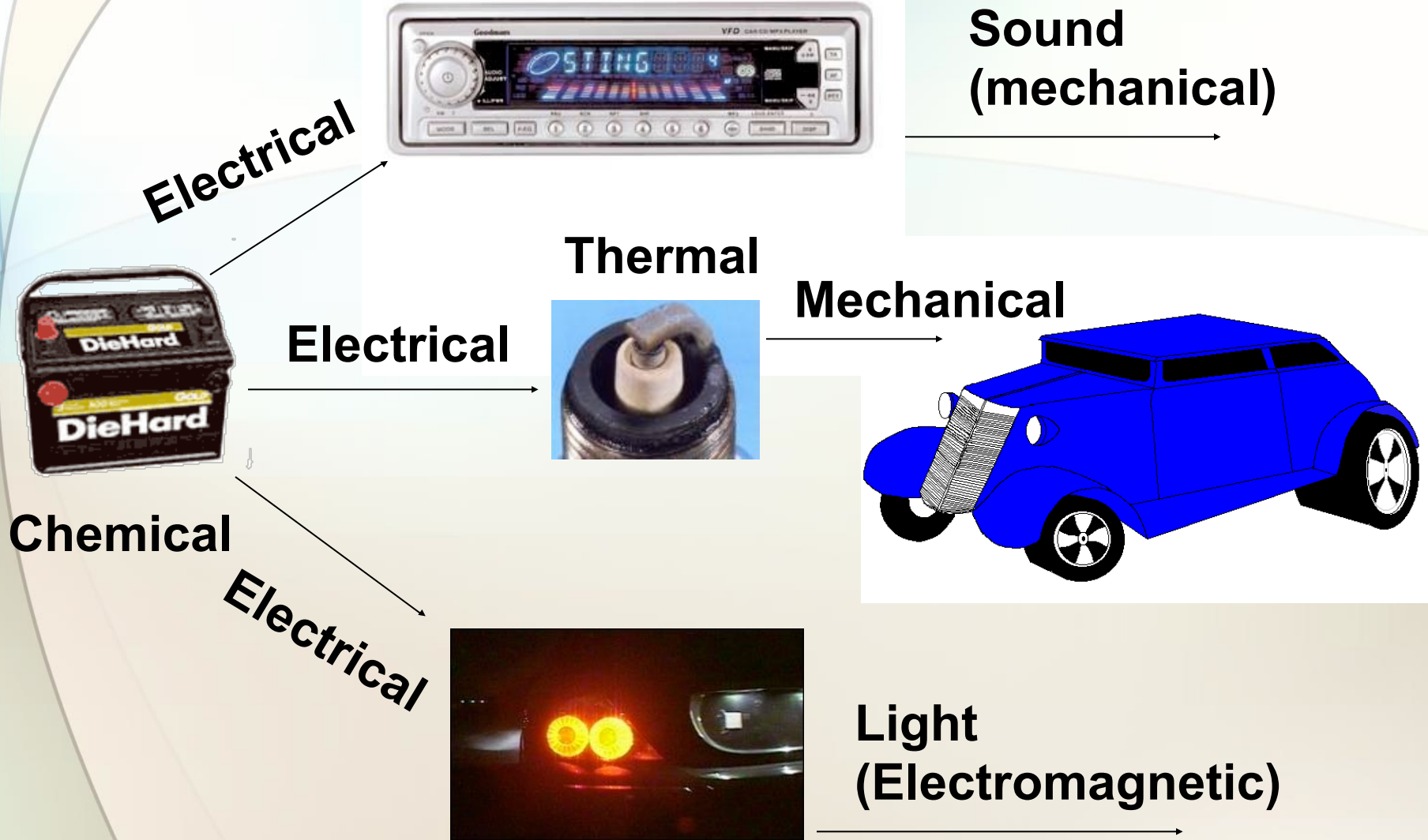


**Thermal Energy**

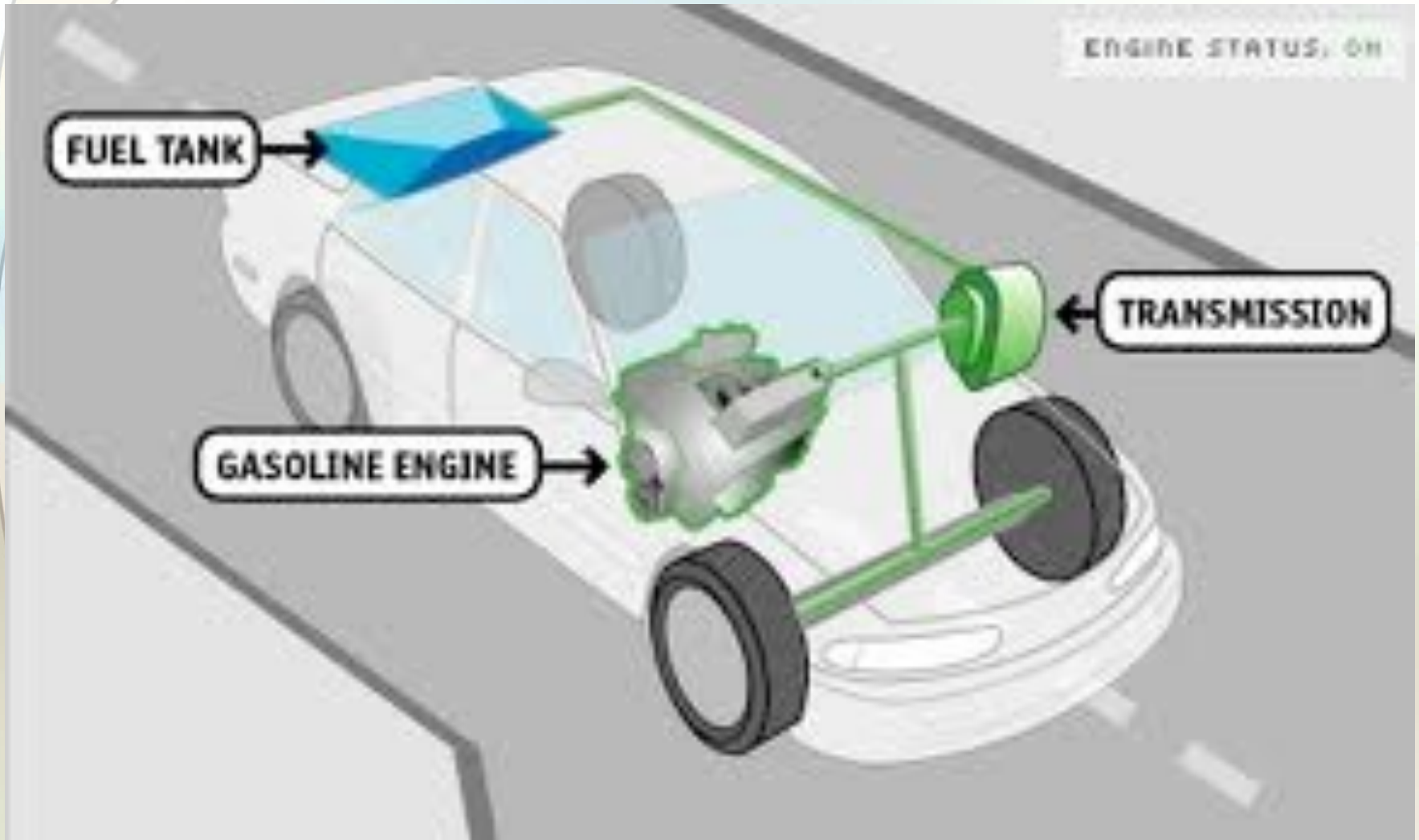
- **What are the energy transformations in a car?**



# Energy Transfer

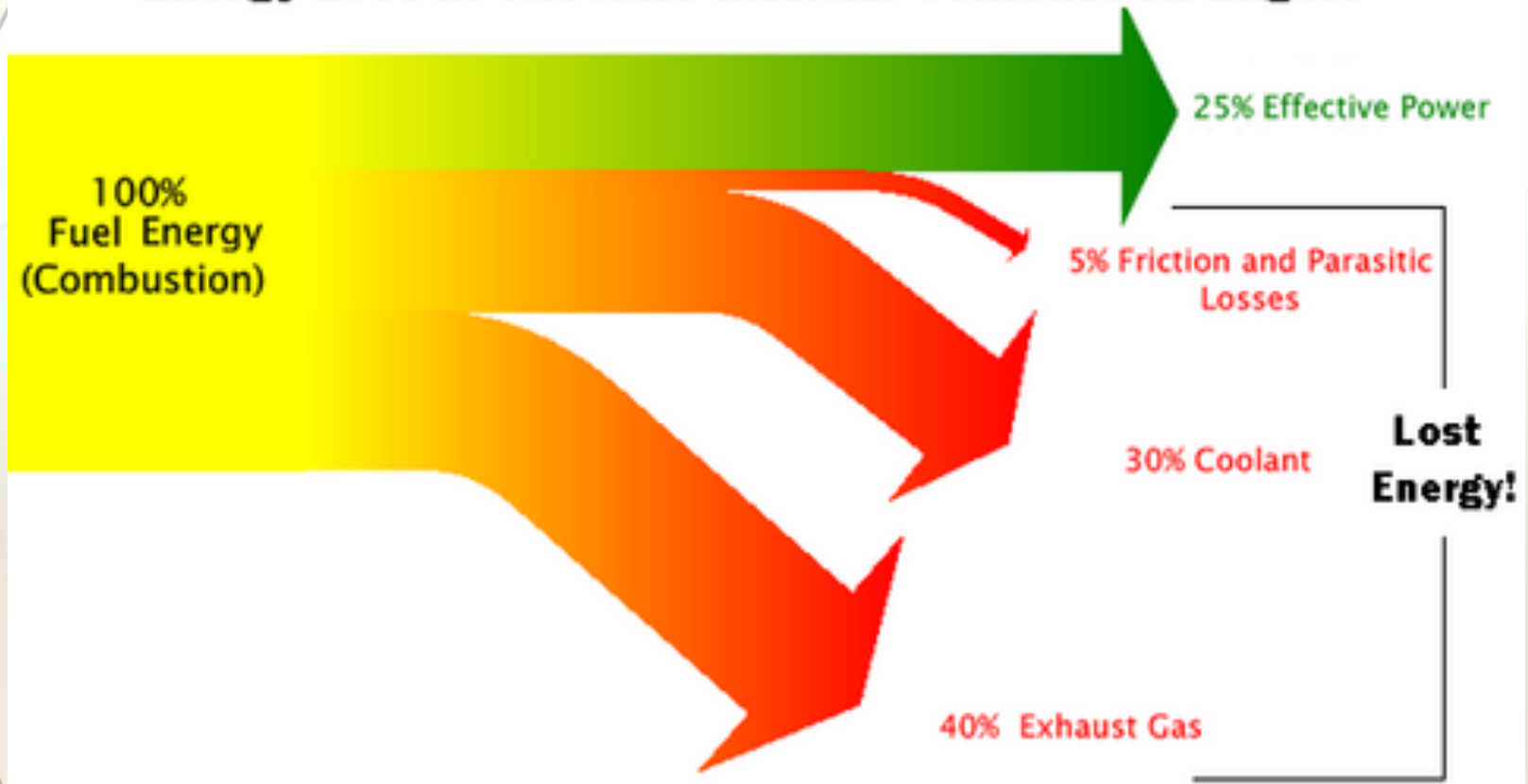


# Identify Energy Types



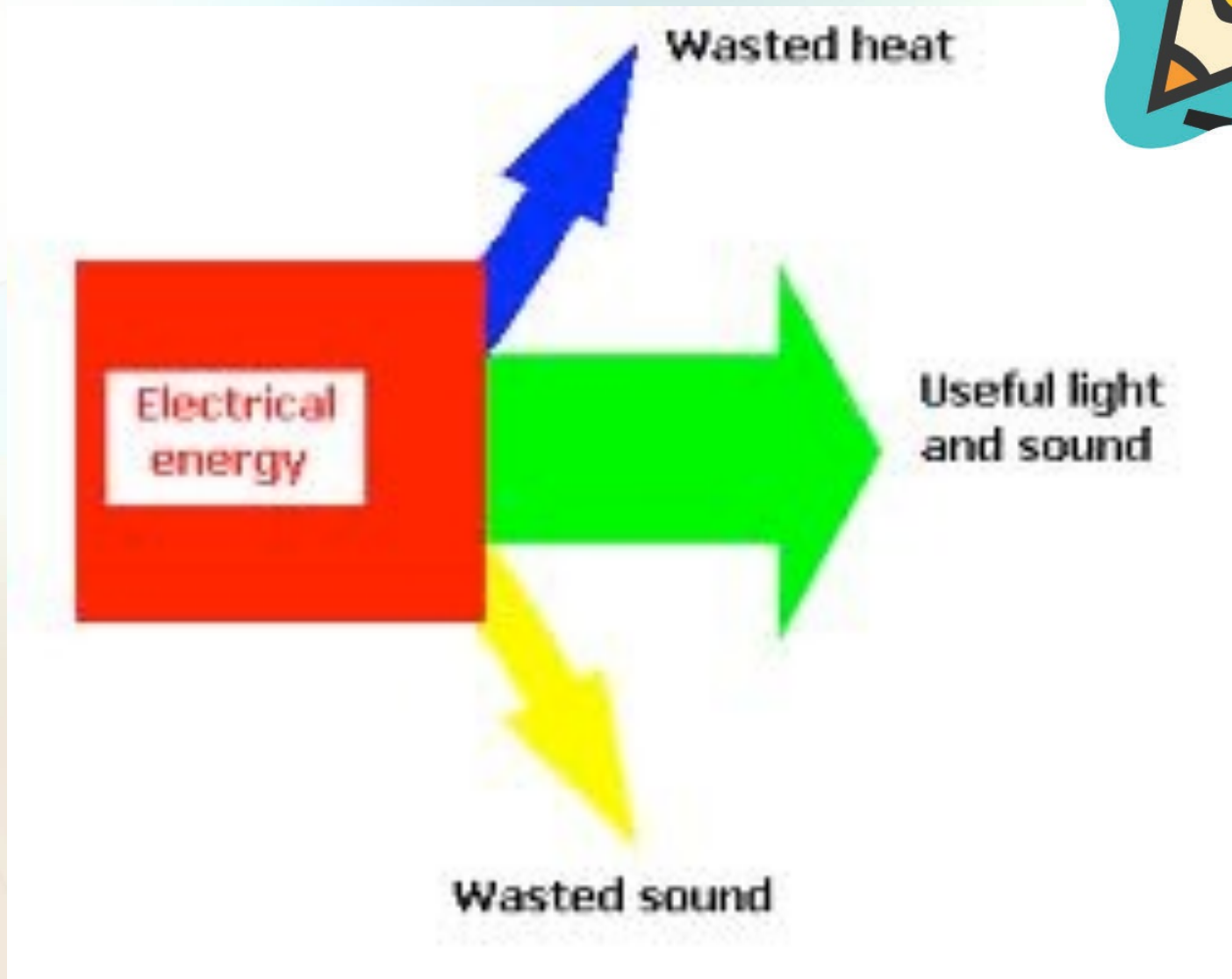
# Energy Flow Diagrams--Car Motor

## Energy Loss in Gasoline Internal Combustion Engine





What could this be depicting?



# Energy Exploration

- **complete worksheet at each station.**



# Hammer and nail

Peter Hubber STELR 08

