

## Conservation of energy and power

### 1- Law of conservation of Energy:

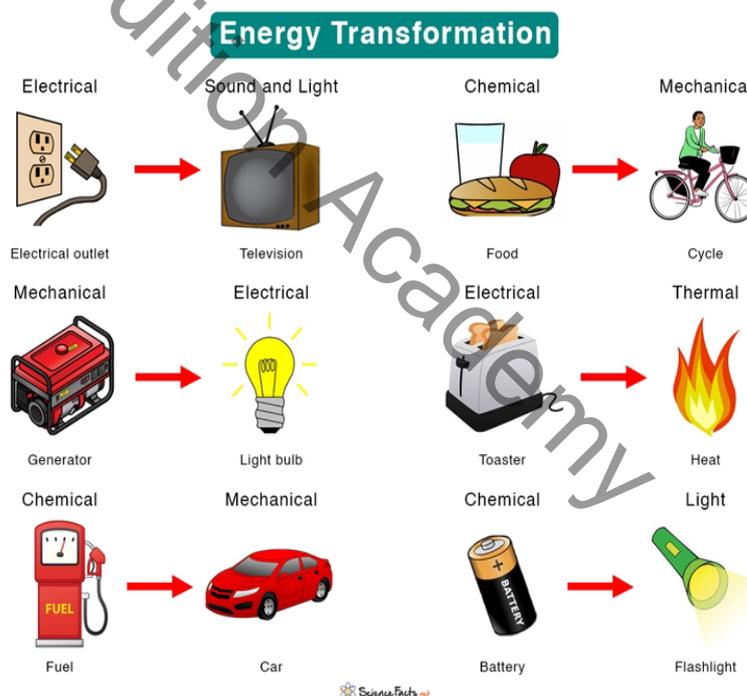
► **Definition:**

\*Energy can be transferred usefully, stored or dispatched. But can never be created or destroyed.

\* Energy may change the form from one to another, but total amount of energy remains same.



- a) A mobile phone is a system when we use the phone energy is usefully transferred from chemical energy stored in the battery. Some of energy dissipated in the form of Thermal energy.
- b) when cold spoon dropped into the hot soup. The thermal energy stored in the hot soup transferred into the cold spoon in the form of thermal energy.



### 2- Power

► **Defination:**

a) power is the rate of energy transferred or the rate of doing work

b) Unit of power is Watt. **Watt= 1 J of energy transferred in 1 sec**

c) formula for measuring power

**$P = E/t$  where as  $P =$  power (Watt) , Energy transferred(J),  $T =$  time(sec)**

Or

 $P = W/t$  where as  $W =$  work done (J)

Q: A motor transfer 4.8kJ energy in 2 minutes. find out it's

Power.

**Solution:**

1kj = 1000J so 4.8KJ = 4800J

1min= 60sec so 2 min= 120 sec

Power=?

 $P = E/t$  $= 4800/120$  $P = 40 \text{ Watt.}$ 

$$P = \frac{W}{t}$$

W = Work done | t = Time taken | P = Power

