

LESSON 6 WORKSHEET SURVIVAL SCIENCE

ANSWERS: _____
INITIALS: _____

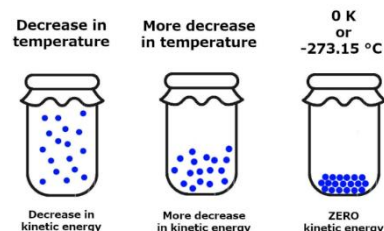
ENERGY TRANSFER

The 3 Laws of Thermodynamics (summarized):

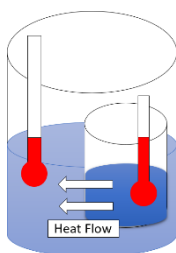
Law 1: Energy can be converted from one form to another.

Law 2: Heat transfer naturally occurs from higher to lower-temperature bodies and from order to disorder in a system.

Law 3: Entropy is zero at absolute 0 K (Kelvin).



1. Heat flows from **hot → cold** or **cold → hot**



2. A change in energy always equals a:
loss in energy conversion of energy **loss in one = a gain in another**

3. What is the temperature of absolute 0 in Celsius? **-273.15°**

4. Energy is measured in Joules (J), but the rate energy is used (power) is measured in J/s, also known as **WATTS** or **HORSEPOWER**.

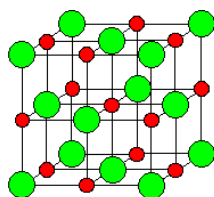
POWER (Electrical/Electron Transfers)

Electron Motion/Transfers: electrochemical, magnetic, electricity/electrical currents, static electricity, batteries, and many others.

(Na⁺ or Cl⁻)

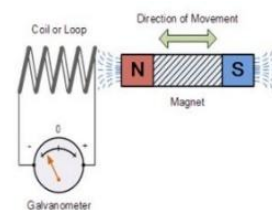
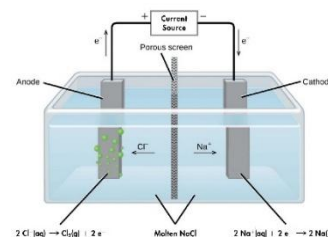
1. In a salt battery positive **Na⁺** ions attract electrons, & negative **Cl⁻** ions repels electrons.

2. Table salt is Sodium (Na) and Chlorine (Cl), i.e., sodium chloride. Label these as either a cation or anion below.



● Na⁺ Na⁺ **cation**
● Cl⁻ Cl⁻ **anion**

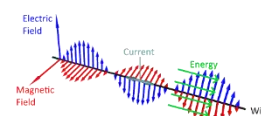
3. Passing an electric current through wire coils and magnets creates rotational motion. Name three objects that use rotational motion to do work (anything that rotates can do work).



List 3:

Waterwheels, windmills, vehicles, generators, lawnmowers, grinders, engines, many more

4. Moving electrons along electrical wires create a magnetic field. At what angle is the magnetic field to the electric field? **Right angle – 90°**



5. What metals are frequently used to make electric wire: **copper & aluminum**