**Energy Test**

**Formulas:**

PE=mgh (Potential Energy)

KE=1/2mv2

**Vocabulary:**

Energy, Potential energy, kinetic energy, mechanical energy, nuclear energy, light energy, electric potential energy

1. A 65 kg rock climber ascends a cliff. What is the climber’s gravitational potential energy at a point 35 m above the base of the cliff?

65kg(9.81 m/s2 gravitation constant)(35m)=2.2x104 kgXm2/s2

1. What is the kinetic energy of a 44 kg cheetah running at 31 m/s2.

½(44kg)(31m/s2)=2.1X104 kgXm2/s2

Matching

1. Energy (5) 1. Atomic nuclei form to create a nucleus.
2. Kinetic energy (3) 2. Energy that lies at the level of an atom.
3. Potential energy (4) 3. Moving energy depends on mass and speed.
4. Nuclear energy (1) 4. Stored Energy depends on position
5. Mechanical energy (2) 5. When work is done

Law of Conservation of Energy- \_\_\_\_total amount of energy in the universe never changes although energy may change from one form to another. Energy never dissapears.\_\_\_\_\_\_\_\_\_.

1. When mechanical energy is conserved and the net change in energy is equal to the energy transfer you have 1st Law of Thermodynamics.
2. True or False. All work done by a machine is USEFUL work. False
3. What are the three units used to measure temperature?

Celsius, Fahrenheit, Kelvin

1. Convert 78 degrees Fahrenheit into Celsius using this equation:

Fahrenheit = 1.8 x Celsius temperature + 32

1.8(Celcius)+32=78 Celsius=25.5 degrees Celsius

1. What is the lowest temperature known as absolute zero?

-273.15

Matching:

1. Conduction a. material which energy can easily transfer heat (4)
2. Convection b. helps retain heat (5)
3. Radiation c. Results from movement of warm fluids (2)
4. Conductor d. results from direct contact (1)
5. Insulator e. transferred as electromagnetic waves (3)
6. How much energy must be transferred as heat to 200 kg of water in a bathtub to raise the water’s temperature from 25 degrees Celsius to 37 degrees Celsius?

Specific heat of water is 4.185J/kgXK

37 degrees Celsius-25 degrees Celsius is 12 degrees Celsius = 12 Kelvin

Energy = 200kg(4.185J/kgXK)(12K)

10000000J or 1.0X104 kj