

## ENERGY WORKSHEET

Name \_\_\_\_\_ Date \_\_\_\_\_ Class \_\_\_\_\_ EN \_\_\_\_\_

### Part 1. The basic types of energy

1. The SI units for energy are \_\_\_\_\_.
2. Stored energy or energy due to position is known as \_\_\_\_\_ energy.
3. The formula for calculating GPE is \_\_\_\_\_.
4. Energy of motion is known as \_\_\_\_\_ energy.
5. Two factors that can influence the amount of kinetic energy are \_\_\_\_\_ and \_\_\_\_\_.

**Matching:** Determine the best match between basic types of energy and the description provided. Put the correct letter in the blank.

- |  |                          |
|--|--------------------------|
| ____ 1. A skier at the top of the mountain                           | (a) Kinetic Energy       |
| ____ 2. Gasoline in a storage tank                                   | (b) Potential Energy     |
| ____ 3. A race-car traveling at its maximum speed                    | (c) Both forms of Energy |
| ____ 4. Water flowing from a waterfall before it hits the pond below |                          |
| ____ 5. A spring in a pinball machine before it is released          |                          |
| ____ 6. Burning a match  |                          |
| ____ 7. A running refrigerator motor                                 |                          |

### Calculations:

1. Calculate the **potential energy** of a rock with a mass of 55 kg while sitting on a cliff that is 27 m high.
2. What **distance** is a book from the floor if the book contains 196 Joules of potential energy and has a mass of 5 kg?
3. An automobile is sitting on a hill which is 20 m higher than ground level. Find the **mass** of the automobile if it contains 362,600 J of potential energy.
4. How much **kinetic energy** would the rock in problem #1 have right before it hits the ground?

5. **How fast** would it be going right before it hits the ground?
  
6. Calculate the **kinetic energy** of a truck that has a mass of 2900 kg and is moving at 55 m/s.
  
7. Find the **mass** of a car that is traveling at a velocity of 60 m/s North. The car has 5,040,000 J of kinetic energy.
  
8. **How fast** is a ball rolling if it contains 98 J of kinetic energy and has a mass of 4 kg?
  
9. **Create** your own word problem involving GPE, KE or both and then solve it.

## Part 2. Forms of Energy.

Directions: Determine the type of energy for each form (Kinetic, Potential, or Both) and give an example.

Form	Definition	Type (KE, PE, or Both)	Example (for each type if both)
Mechanical (motion) energy	An object's movement creates energy		
Thermal (heat) energy	The vibration and movement of molecules		
Radiant energy	Electromagnetic waves		
Electrical energy	Movement of electrons		
Chemical energy	Stored in bonds of atoms and molecules		
Nuclear energy	Stored in the nucleus of an atom; released when nucleus splits or combines		
Sound energy	Vibration of waves through material		
Gravitational energy	Energy of position or height		

### Part 3. Forms of Energy Continued

Directions: Match the energy form(s) to the description provided. A few questions may have more than one answer.

- |  |                |
|--|----------------|
| _____ 1. Falling rocks from the top of a mountain    | (a) Mechanical |
| _____ 2. Release of energy from the Sun              | (b) Electrical |
| _____ 3. Energy released from food after it is eaten | (c) Heat       |
| _____ 4. Batteries                                   | (d) Radiant    |
| _____ 5. The energy that runs a refrigerator         | (e) Chemical   |
| _____ 6. Nuclear fission reactors                    | (f) Nuclear    |
| _____ 7. The rumble of thunder from a storm          | (g) Sound      |
| _____ 8. Rubbing your hands together                 |                |
| _____ 9. Gasoline                                    |                |
| _____ 10. Food before it is eaten                    |                |
| _____ 11. Lightning                                  |                |

### Part 4. Transformation of Energy

Directions: Use the following forms of energy to fill in the table below: **mechanical, electrical, heat, radiant, chemical, nuclear, and sound**. The first one has been done for you.

	<b>ORIGINAL ENERGY FORM</b>	<b>FINAL ENERGY FORM</b>
1. Electric motor	electrical	mechanical
2. A battery that runs a moving toy		
3. A solar panel on the roof of a house		
4. A person lifting a chair		
5. A nuclear power plant		
6. A toaster		
7. A church bell		
8. Gasoline powering a car		
9. A light bulb		
10. Photosynthesis		

