

Name: _____ Block: _____

Creating Energy Problems

Directions

Because there are so many types of energy, there are many types of energy problems. Some common examples are:

Gravitational Potential Energy

These problems involve the formula $U = mgh$ where $g = 9.8 \frac{m}{s^2}$.

Kinetic Energy

These problems involve the formula $E_k = \frac{1}{2}mv^2$.

Conservation of Energy

These problems involve conversion of one form of energy (or work) into another. Usually the problem will give enough information to calculate one form, and all but one of the variables needed for the other form. The problem will ask you to find the missing variable.

For example, if you had a problem that involved converting gravitational potential energy to kinetic energy, you would have:

$$U = mgh \quad \text{and} \quad E_k = \frac{1}{2}mv^2$$

Because $\Delta U = -\Delta E_k$, this means:

$$mg\Delta h = -\frac{1}{2}m(\Delta v)^2$$

The problem would need to give you all but one of the variables in the problem (m , v , and h) and you would have to find the remaining variable. (*Note: because m appears on both sides of the equation, you cannot specify v and h and ask for m without giving more information.*)

Assignment

1. Make up and write out a one-step energy problem (either gravitational potential energy or kinetic energy) in which you give all but one of the variables and ask for the remaining one.
2. Make up and write out a conservation of energy problem that involves any two of: work, gravitational potential energy, or kinetic energy.
3. Write out solutions for both problems on a separate sheet of paper.