

Name: _____ Date: _____ Period _____

Conservation of Energy Notes

Bell Ringer:

Define the following:

- Kinetic Energy
- Potential Energy
- Work
- Power

Learning Target:

Conservation of Energy

- Total Energy will always stay the same.
- When Friction is present, thermal energy is produced, which slows objects down.
- This Energy can be thought of as dissipated energy

For the following scenarios, Create a bar graph for the potential energy, kinetic energy, and total energy.

A skater stopped at the top of the ramp.	A skater riding at the very bottom of the ramp.
A Skater riding half way down the ramp.	A skater riding down the ramp but has not yet reached the bottom.

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Calculating Energy for Conservation of Energy

Conservation of Energy:

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Equation:

Example Problem:

0.55 kg rubber ball is dropped from rest at a height of 1.5 meters

What is the gravitational potential energy of the ball when it is dropped?

How fast is the ball moving when it hits the ground? (assume no air resistance)

During the collision with the ground the ball loses 0.8 Joules of energy. What is the maximum height the ball reaches on its rebound back up?

Practice Problems

1. A 0.35 kg rubber ball is dropped from rest at a height of 1.2 meters
 - a. What is the gravitational potential energy of the ball when it is dropped?

 - b. How fast is the ball moving when it hits the ground? (assume no air resistance)

 - c. During the collision with the ground the ball loses 1.5 Joules of energy. What is the maximum height the ball reaches on its rebound back up?

2. A 0.25 kg rubber ball is dropped from rest at a height of 1.6 meters
 - a. What is the gravitational potential energy of the ball when it is dropped?

 - b. How fast is the ball moving when it hits the ground? (assume no air resistance)

 - c. During the collision with the ground the ball loses 2.1 Joules of energy. What is the maximum height the ball reaches on its rebound back up?

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3. A 0.45 kg rubber ball is dropped from rest at a height of 1.6 meters
 - a. What is the gravitational potential energy of the ball when it is dropped?

 - b. How fast is the ball moving when it hits the ground? (assume no air resistance)

 - c. During the collision with the ground the ball loses 1.1 Joules of energy. What is the maximum height the ball reaches on its rebound back up?

4. A 0.65 kg rubber ball is dropped from rest at a height of 2.2 meters
 - a. What is the gravitational potential energy of the ball when it is dropped?

 - b. How fast is the ball moving when it hits the ground? (assume no air resistance)

 - c. During the collision with the ground the ball loses 3.5 Joules of energy. What is the maximum height the ball reaches on its rebound back up?