

Name _____

Springing into Action: Exploring Elastic Potential Energy

Open-Ended Response Answer Key

1. Safety precautions for designing structures or equipment relying on elastic potential energy include using high-quality materials, regular maintenance, weight limits, and safety nets. Engineering considerations involve calculating spring constants, optimizing designs, and ensuring user safety.
2. I would design a kinetic energy recovery system (KERS) for bicycles. When the rider applies the brakes, the KERS would store energy from the slowing wheels in stretched springs. When needed, the stored energy would be released to provide a speed boost, enhancing cycling efficiency.
3. Understanding elastic potential energy is crucial in sports equipment design, ensuring proper materials and safety mechanisms. It also affects athlete safety, as improper handling of elastic energy can lead to accidents and injuries.
4. Elastic potential energy is utilized in medical devices like spring-loaded syringes and industrial machinery like conveyor belts. It enhances precision and efficiency in medical procedures and material handling, contributing to improved healthcare and productivity.

