

Name \_\_\_\_\_

## Exploring Kinetic Energy: Objects in Motion

### Open-Ended Response Answer Key

1. An object's mass and kinetic energy are directly related. A heavier object in motion has more kinetic energy than a lighter one. Mass affects an object's ability to perform work because kinetic energy is crucial for moving or doing tasks.
2. In transportation, kinetic energy is harnessed for propulsion. For example, cars use engines to convert fuel's chemical potential energy into kinetic energy to move. Bicycles rely on human power to turn pedaling effort into kinetic energy, and trains use engines to do the same.
3. I would design a bouncing ball with colorful LED lights inside. When bounced, the kinetic energy from the impact would light up the ball in vibrant colors, creating an exciting visual display.
4. A practical example of kinetic energy conversion is a roller coaster. As it ascends a hill, potential energy increases. When it descends, this potential energy is converted into kinetic energy, making the coaster move faster. The process reverses when climbing another hill.

