

Name _____

Energizing Thermodynamics: Defining Work

Short Answer Key

1. Example answers could include lifting a backpack, pushing a lawnmower, or using a wrench to tighten a bolt.
2. The formula for work is $Work (W) = Force (F) \times Distance (d) \times \text{Cosine of the Angle } (\theta)$. Force represents the strength of the push or pull, distance is how far the object moves, and the cosine of the angle accounts for the direction of the force.
3. Work and energy are related because when work is done on an object, it transfers energy to that object, causing it to gain energy. For example, when you lift a ball, you do work on it, and it gains gravitational potential energy.
4. Expansion work is important in understanding how gases behave when they expand, such as in car engines or the inflation of a balloon. It helps us predict and control the behavior of gases in various applications.
5. Electrical work is involved in charging a phone. When you plug in your phone, electrical work is done as charged particles (electrons) move through the charging cable.

