

## Vocabulary: Sled Wars



### Vocabulary

- **Acceleration** – a change in speed or direction.
  - Acceleration is measured in meters per second per second, or  $m/s^2$ .
  - Acceleration can mean either speeding up or slowing down. An object moving at a constant speed but changing its direction is also accelerating.
- **Energy** – the ability to cause changes, apply a force, or do work.
  - Energy can exist in many forms. It can be stored or used.
  - Energy can be changed to another form, but it can never be created or destroyed.
  - The SI unit of energy is the joule (J).
- **Friction** – a force that works against motion as surfaces rub together.
  - Friction causes sliding objects to slow down and stop.
- **Kinetic energy** – the energy an object has because of its motion.
  - The faster an object moves, the greater its kinetic energy is.
  - The formula for kinetic energy is  $KE = \frac{1}{2} m \cdot v^2$ , where  $m$  is mass and  $v$  is velocity (or speed).
- **Momentum** – a measure of how difficult it is to stop a moving object.
  - Momentum is the product of an object's mass and velocity,  $p = m \cdot v$ .
- **Potential energy** – the energy an object has because of its position or shape.
  - The higher an object is placed, the greater its *gravitational potential energy*.
  - The formula for gravitational potential energy is  $PE = m \cdot g \cdot h$ , where  $m$  is mass,  $g$  is gravitational acceleration, and  $h$  is height.
- **Speed** – how quickly an object is moving.
  - For example, if an object moves 5 meters in 1 second, its speed is 5 meters per second, or 5 m/s.
  - In general, speed is calculated by dividing distance by time:  $s = \frac{d}{t}$
  - An object's speed in a particular direction is its *velocity* ( $v$ ).