**Vocabulary:** **Roller Coaster Physics**

dictionary2

**Vocabulary**

* Friction – a force that opposes motion.
  + Friction arises because of contact between a moving object and the materials it is moving over or through.
  + The friction between two objects is given by the *coefficient of friction*.
* Gravitational potential energy – energy of position.
  + The higher the object is, the greater its gravitational potential energy.
  + The more massive the object, the greater its gravitational potential energy.
  + Gravitational potential energy is represented by the symbol *U*.
  + Gravitational potential energy is calculated using the formula *U* = *mgh*, where *m* is mass, *g* is gravitational acceleration, and *h* is height.
  + If mass is measured in kilograms, height in meters, and acceleration in m/s2, then the units of gravitational potential energy are joules (J).
    - 1 Joule is equal to one newton-meter, or 1 kg•m2/s2.
* Kinetic energy – energy of motion.
  + The faster an object is moving, the greater its kinetic energy.
  + The more massive a moving object is, the greater its kinetic energy.
  + Kinetic energy is represented by the symbol *KE*, or simply *K*.
  + Kinetic energy is calculated using the formula *K* = *mv*2, where *m* is mass and *v* is speed.
  + If mass is measured in kilograms and speed in m/s, then the units of kinetic energy are joules (J).
* Momentum – a measure of how difficult it is to stop a moving object.
  + Momentum is the product of an object’s mass and velocity and has a magnitude and direction.
    - The magnitude of momentum (*p*) can be found by multiplying the object’s mass and speed: *p* = *m • v*.
  + If mass is measured in kilograms (kg) and speed is measured in meters per second (m/s), the units of momentum are kilograms-meters per second (kg•m/s).
  + For example, the momentum of a 5-kg object moving at 4 m/s is 20 kg•m/s.