



Did you know you can create your OWN roller coaster?!

Engineering new ideas in entertainment!

Building A Roller Coaster

The first hill of a roller coaster is always the highest point of the roller coaster because friction and drag immediately begin robbing the car of energy. At the top of the first hill, a car's energy is almost entirely gravitational potential energy (because its velocity is zero or almost zero). This is the maximum energy that the car will ever have during the ride. That energy can become kinetic energy (which it does at the bottom of this hill when the car is moving fast) or a combination of potential and kinetic energy (like at the tops of smaller hills), but the total energy of the car cannot be more than it was at the top of the first hill. If a taller hill were placed in the middle of the roller coaster, it would represent more gravitational potential energy than the first hill, so a car would not be able to ascend to the top of the taller hill. Cars in roller coasters always move the fastest at the bottoms of hills. This is related to the first concept in that at the bottom of hills all of the potential energy has been converted to kinetic energy, which means more speed. Likewise, cars always move the slowest at their highest point, which is the top of the first hill.



Everyday Science: Roller Coaster Fun Facts!

- *One of the earliest coasters in American carried coal before it carried thrill seekers!
- *In the 15th century, Russia created one of the first known roller coasters- covered in ice!
- *Roller coaster loops are never circular.
- *The tallest roller coaster in the world (right now) is in New Jersey.
- *The longest roller coaster in the world is in Japan.

Acceleration

How quickly an object speeds up, slows down, or changes direction.

Force

Any push or pull.

Gravity

A force that draws any two object towards one another.

Kinetic Energy

The energy of an object in motion, which is directly related to its velocity and speed.

Potential Energy

The energy stored by an object ready to be used.

Speed

How fast an object moves.
The distance that the object travels divided by the time it takes.

Velocity

A combination of speed and the direction in which an object travels.

