



## Topics & Objectives

Newton's Laws of Motion; Force & Acceleration; Kinematics; Rotational & Circular Motion; Work, Power, and Energy; Energy & Momentum

- Collect physical data for analysis
- Predict & calculate forces on riders throughout a ride
- Calculate work & power needed to move riders
- Approximate velocities & altitudes at different times in a ride
- Determine speed of riders in circular motion

## Plan Your Trip!

Receive one free admission ticket for every 10 purchased – perfect for a class trip!

The park opens at 10:30 am and closes at 8, 9, or 10 pm, depending on the day.

Six Flags Great Adventure & Safari is located off I-195 in Jackson, NJ between New York City and Philadelphia

Address:  
1 Six Flags Blvd.,  
Jackson, NJ 08527

Questions?

[njspecialevents@sixflags.com](mailto:njspecialevents@sixflags.com)



## Six Flags Great Adventure

A Day of Physics  
Jillian Scheschuk

# Bring a Stopwatch!

Students should bring a timer, an acceleration meter, an angle meter, and lots of energy!

## Let's Go!

### Why Six Flags Great Adventure?

Students get first-hand experience with the concepts taught in their Physics class. They will encounter examples of acceleration, rotational motion, conservation of energy, and forces that are much more interesting outside of the normal classroom environment. A day at the park will be a filled with hands-on learning and practical applications of the concepts the students have worked on throughout the curriculum.



## What did you learn?

1. Green Lantern's lift hill has an angle of  $26^\circ$  and is 292 feet long. What is the vertical displacement of the train to reach the top as a result of climbing the lift hill?
2. El Toro's trains go up the lift hill much faster than other roller coasters; yet it still travels at a nearly constant velocity. What Acceleration Meter reading would you expect to find while ascending this hill?
3. Suppose the mass of the Kingda Ka train and riders is 8325 kg. How much work is done to accelerate from rest to the velocity at the base of the hill?
4. The first vertical drop on Nitro is 65.6 meters. What is the potential energy of the train just before it falls?