

FLIGHT DECK - The Ride

Use the graph titled *Ride Profile and Accelerations* to help you answer these questions.

1. Find the region on the graph that meets each of these descriptions. Record the corresponding letter for each region in the space provided.

____ Work is being done by an electric motor on the cars

____ This point has the greatest Gravitational Potential Energy

____ This point has the greatest Kinetic Energy

2. Is there a place where the riders go at a constant speed? Where? How did you determine they were going at a constant speed there? (Be specific)

3. At this place on the ride, do the riders experience any net forces? Any net accelerations? In which direction is the net force if there is one? Why did you answer these questions the way you did?

4. Are any energy changes going on during this section of the ride? Describe them.

5. List 2 places where the riders are speeding up . (These can be between the lettered points on the graph or at specific places on the ride as you saw it in the video.) Are any energy changes going on in each section? Describe. Would the riders feel any net forces or accelerations? Describe the direction of any net forces and indicate why they would feel the net force in this direction.

Location on Ride	Energy Changes	Net Forces/Accelerations
(a)		
(b)		

6. List 2 places where the riders are slowing down. (These can be between the lettered points on the graph or at specific places on the ride as you saw it in the video.) Are any energy changes going on in each section? Describe. Would the riders feel any net forces or accelerations? Describe the direction of any net forces and indicate why they would feel the net force in this direction.

Location on Ride	Energy Changes	Net Forces/Accelerations
(c)		
(d)		

7. List 2 places where the riders are changing direction rapidly. (These can be between the lettered points on the graph or at specific places on the ride as you saw it in the video.) Are there any energy changes going on in each section? Describe. Would the riders feel any net forces or accelerations? Describe the direction of any net forces and indicate why they would feel the net force in this direction.

Location on Ride	Energy Changes	Net Forces/Accelerations
(e)		
(f)		

8. Five concepts are listed here. Choose two (2) of them and describe a situation/location on **Flight Deck** where each concept comes into play for the riders. Explain how the physics concept influences the experience people have on the ride!

Inertia Momentum Friction Energy Centripetal Force

9. Roller coasters are considered to be "gravity machines". Describe three (3) ways in which the gravity affects the ride and/or riders on a typical roller coaster. Be specific and thorough.

This worksheet does not ask students for calculations but asks them to apply the basic concepts to a specific ride. In this case it is Flight Deck, which is featured in several commercially available video tapes. If you have a videotape of one of the rides and you have data that is similar to the data here, you can generate your own worksheet using this one as a model.