



### **Why Take a Field Trip to an Amusement Park?**

If physics teachers could design the ultimate teaching laboratory, what would it be like? The laboratory would certainly contain devices for illustrating Newton's laws of motion, energy transformations, momentum conservation, and the dynamics of rotation. It would consist of large-scale apparatus so the phenomena could be easily observed and analyzed. Oh, and of course, the dream laboratory would allow the students an opportunity to not only witness the laws of physics in operation, but also feel them!

Well, this dream laboratory does exist and is as close as Six Flags Great America! At Six Flags Great America, virtually all the topics included in the study of mechanics can be observed operating on a grand scale. Furthermore, phenomena, such as weightlessness, that can only be talked about in the classroom, may be experienced by anyone with sufficient courage.

Students must quantify what they see and feel when doing amusement park physics. Unlike textbook problems, no data is given. Therefore, students must start from scratch. Heights of rides, periods of rotation, lengths of roller coaster trains must be obtained before plugging data into equations learned in the classroom. Fortunately, only simple equipment is required to obtain data that will allow the calculation of such diverse quantities as a person's potential energy at the top of the American Eagle?, the centripetal acceleration of the Cajun Cliffhanger, or the speed of a passenger on BATMAN? The Ride.

Over the years, many schools have become involved with amusement park physics. This past May, "Physics Day" at Six Flags Great America attracted over 20,000 physics students from four states. These students would probably agree that Six Flags Great America provides the ultimate vehicles for learning physics!