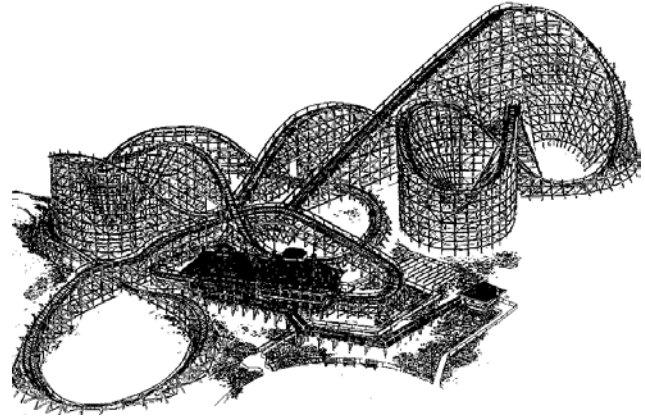# The Wildcat

1. Draw a force diagram labeling the various forces you experience while going through the horizontal cyclone. Note: the horizontal cyclone is the last horizontal loop. It can easily be seen from where you will be waiting in line.

2. Find the tangential velocity in the cyclone. The length of the train is 12.95 m. (Hint: see Appendix B.)

3. Calculate the centripetal acceleration in the cyclone if the radius is 18.59 m.

4. Compare your value from number 3 to an experimental value obtained from an accelerometer.

5. Use a horizontal accelerometer to measure the average stopping force (in g's) at the end of the ride and record your value below.

6. Using your stopwatch, find the approximate speed just prior to slowing down at the end of the ride. Then find the amount of time it takes for the train to come to a complete stop. Using these values, determine the average acceleration at the end of this ride.

7. Using the acceleration found in number 6, calculate the stopping force experienced at the end of this ride.

8. Which force on this ride is greater? The force experienced in the cyclone or the force experienced while slowing down at the end of this ride?