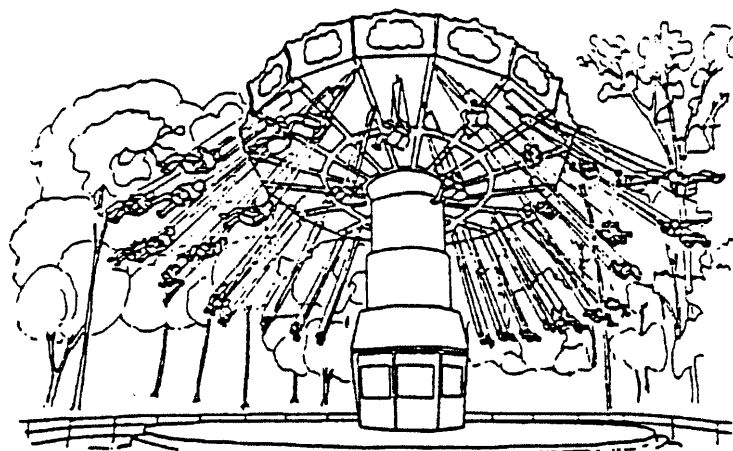


## QUALITATIVE QUESTIONS

### HFP

1. Will an empty swing or one with someone in it ride higher? Why? (If there is no empty swing, compare one with a large person to one with a small person.)



2. Watch the ride from the beginning until it reaches full speed but before it tilts. What happens to the angle of the chain attached to the seats as the ride increases in speed? Why?
3. Do you feel like your weight changes as the ride increases in speed. Do you think it really does? Explain!

**The plane of the circle of seats normally tilts. For Physics Day, the tilting will be disabled to make measurements and analysis easier.**

1. Draw a force diagram that shows all of the forces that act on the rider:
  - a. When the ride is at rest
  - b. When the rider is moving.
2. What is your maximum Force Factor reading before the ride tilts in each of the following orientations on the ride?
  - a. vertically (i.e. perpendicular to the ground) \_\_\_\_\_
  - b. horizontally (i.e. parallel to the ground and directed toward the axis of rotation.) \_\_\_\_\_
  - c. tilted parallel to the chains \_\_\_\_\_