# *The Orbit*


## Do the following while watching:

Observe an object or feature on the ride near the middle of the spinning ride. Does the object seem to be going faster or slower than the cars at the edge of the ride?

For one trip around, the car on the **outside** …

| | | |
|---|---|---|
| goes | farther than<br>as far as<br>not as far as | the object near the middle |
| takes | more time than<br>the same time as<br>less time than | the object near the middle |
| goes, therefore | faster than<br>as fast as<br>slower than | the object near the middle |

## Do the following after riding:

- As the ride begins, the cars swing ….. outward    inward
- As your speed increases, you feel ….. heavier    lighter
- After the ride tilts, you feel the heaviest ….. at the bottom    at the top    along the side
- After the ride tilts, you feel the lightest ….. at the bottom    at the top    along the side
- When you are upside down you feel as if you are going to fall ….. out of your seat    not at all

In a brief paragraph, explain WHY you think each of the five phenomena above happens

# The Orbit, continued …

**DATA**: (When ride is at full speed)

- Time for car to complete one revolution: ________ sec

- Distance (estimated) car travels in one revolution: ________ m, ________ ft
  (Estimate distance from front of one car to the front of the next car & multiply by the number of cars.)

## Calculate:

- Speed of the car (speed equals distance divided by time): ________ m/s, ________ ft/s

- What is the TOTAL DISTANCE traveled by a car while the ride is in motion?

  ________ m, ________ ft (Determine the data you must collect to answer this first!)

**Do the following while riding:** (Choose a time when the ride is as close to vertical as possible)
Use the vertical accelerometer to measure…

- Acceleration at the side of the path: ________ g's

- Acceleration at the top of the path: ________ g's

- Acceleration at the bottom of the path: ________ g's

Attach a rubber washer to a string and hang it from your hand. Describe the motion of the washer as you go through one complete turn horizontally (sideways) and one complete turn vertically (up and down):

HORIZONTAL (sideways):

VERTICAL (up and down):