SNOOPY'S SCIENCE ADVENTURE
Foothills Middle School
Physics Field Trip

Your Name:_____

Group Number:_____

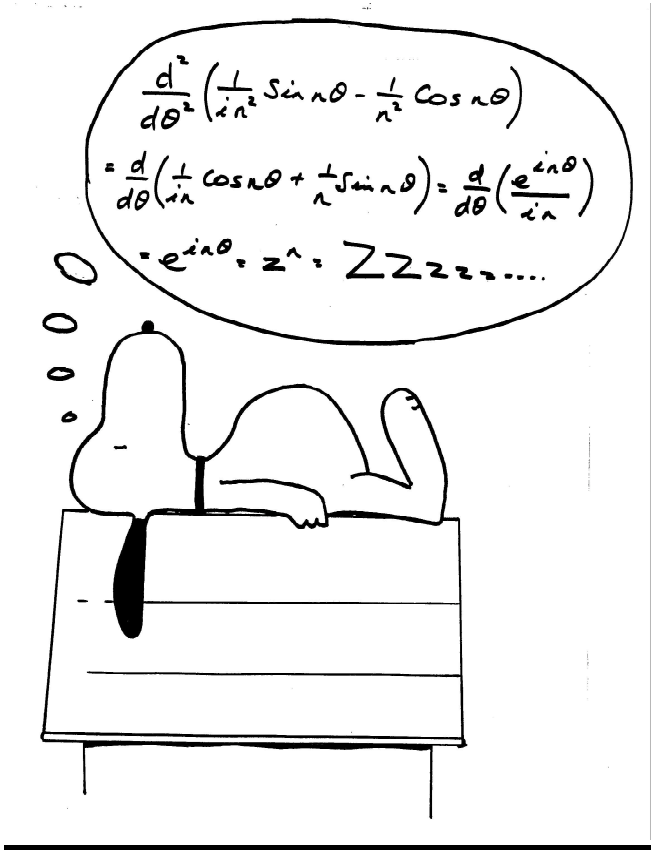
Group Members:

Chaperone: _____

Current Science Teacher:

_____Castillo OR _____Park

Science pd____



Silver Bullet Train:

1. Estimate the length of the Silver Bullet train.

L = _____m

2. What is the minimum force of the motor uses to lift the Silver Bullet and riders to the top of the first incline? (Assume the Silver Bullet has a mass of 10,000 kg and each rider averages 73.0 kg.)

Force= _____N

3. Calculate the increase in speed resulting from the initial drop 33.2 m (109 ft.).
Speed Increase _____m/s

4. Estimate the radius of the lower elevated spiral and determine the acceleration.
Radius _____m
Acceleration _____

Bumper cars:

1. Which of Newton's Laws is best used to describe what happens most between the bumper cars?

2. Where do the cars get their power?

3. What is the purpose of the rubber bumpers on the cars?

4. Observe a collision and describe it using conservation of energy concepts.

Plunge:

1. Measure the angle of the drop path and the drop time.

_____

2. Estimate the height of the drop. (Explain how you did this.)

h = _____m

3. Measure the acceleration on the drop path using an accelerometer.

a = _____m/sec2

Dragon swing:

1. Using an accelerometer, measure the centripetal acceleration experienced at the bottom of the arc of the Dragon Swing.

a = _____m/sec2

2. Estimate the length of the pendulum "arm" or "radius of the rotation of the ship" (in meters). Explain how you did this.

L = _____m

Boomerang:

1. Calculate the average speed of the last car on the train during the first descent.

distance used =

time used =

avg speed = _____m/sec

2. Measure the acceleration as you go through the bottom of the loop.

a = _____m/sec2

Montezooma's revenge:

1. Use an accelerometer to estimate the train's take off acceleration.

a =_____

2. What is the deceleration of the coaster when the first big braking starts? (Explain your method and calculations).

a =

Riptide:

1. Estimate the maximum height reached by the water jets.
Max. height m _____

2. Assuming each water jet emanates from a 1.27 cm diameter pipe, calculate the total volume flow rate for all water jets.

Volume Flow Rate _____m3/s

Log ride:

1. Estimate the number of riders to ride the log ride as of its 30^{th} anniversary on July 11, 1999 (Assume the ride is operational 340 days a year for an average of 10 hours per day) _____

2. Knott's reports that the water's path is 670 m in length. What is your average velocity on the trip?
Time used =
Avg velocity =

la Revolucion:

Determine the complete angle through which the riders move.

a = _____ degrees

2. Estimate the length of the swinging arm from the pivot point to the passenger end.

L = _____m

3. Determine the period of La Revolucion.

t = _____sec

See website for additional assignment. Use the back of the sheet if necessary.