

**IB PHYSICS**

Name: \_\_\_\_\_

Period: \_\_\_\_\_ Date: \_\_\_\_\_



**DEVIL PHYSICS**  
**BADDEST CLASS ON CAMPUS**

**PHYSICS DAY LAB PROMPT**

1. The class will form 4 research teams. Teams will be assigned one of the following lab prompts at random.
  - a) Find the percent difference between acceleration rates of the front versus the back seat on the first drop of three different roller coasters.
  - b) Compare the g-force at the top of the first loop of five different roller coasters. This can be done through timing or through accelerometer measurement, but the same method must be used on all coasters.
  - c) Find the percent difference between velocity at the bottom of the first drop and velocity just before final braking on 3 different roller coasters. Note if there was any intermediate braking points.
  - d) On Phoenix, collect data to determine how maximum g-force varies with row number, from one end to the center. Only 3 trials per row are required.

## 2. Team Roster and Lab Assignments:

Team Number	Names	Lab Assignment
1	1. _____ 2. _____ 3. _____ 4. _____	
2	1. _____ 2. _____ 3. _____ 4. _____	
3	1. _____ 2. _____ 3. _____ 4. _____	
4	1. _____ 2. _____ 3. _____ 4. _____	

3. Lab Guidance:

- a) You must get a *Physics Day Lab Procedure Approval Worksheet* completed and approved by the teacher prior to Physics Day.
- b) You must create a data collection worksheet, print it, and bring it to Physics Day.
- c) You must complete all research for data you will need to complete your experiment prior to Physics Day. This may include drop heights, cart length, etc.
- d) On all experiments, have one person ride the roller coaster and provide their perception of the answer to the research question. Document this on your data collection worksheet.
- e) Document all qualitative observations on your data collection worksheet.
- f) This is a team project (probably your only one in IB Physics). You will submit one typed lab report with the names of all team members on the cover sheet. All members of a team will receive the same grade.
- g) You will be given time in class to prepare your procedures. Use your time wisely and be sure to exchange contact information.

4. Safety Considerations:

- a) Wear closed-toe shoes.
- b) Don't break any park rules.