Amusement Park Physics-B



You are competing with several other applicants to design a new amusement park in Tuscaloosa Alabama. To show off your skills you must draw a miniature ride. Your ride will be designed for a marble instead of people. Now is your chance to test out your engineering skills! This problem-based project will involve a blueprint of the possible ride, a fully WORKING model of your design, and a presentation of your WORKING model. Lots of points are at stake...so do your BEST work!!

**Part 1 (60pts. Formative) Due Date: \_\_\_5/17/13**\_\_\_\_

Research roller coasters, motion rides, and water rides.

Here’s a website to get you started: <http://www.eduplace.com/science/dw/6/unit/f/index.html>

Take notes and study (10 points each):

* The potential energy of the park ride
* The kinetic energy of the park ride
* The forces acting on the ride
* The Newton’s different laws of motion that apply to the ride

Grading Rubric for notes:

* 2-Incomplete, unorganized, and/or notes not on template
* 5-Somewhat complete, shows some organization, turned in on the template
* 10-High quality, complete, and turned in on the template!

You’ll be given **ONE** day to research in class...**the rest is up to you!** In class we’ll be studying about the physics that apply to your ride; you need to figure out **how** to apply them. I strongly suggest that you begin your research before the scheduled computer day so that you can be productive during that hour.

**Part 2 (40pts. Summative) Due Date: \_\_5/17/13\_\_\_\_**

Design one amusement park ride for a Blueprint drawing to scale

Include:

* A VERY DETAILED blueprint of each ride (40 points each)
  + Label the potential and kinetic energy correctly
  + Label at ALL of Newton’s forces acting on it (Hint: There are several types of friction as well as gravitational forces)

Grading Rubric for blueprint:

* 2-Barely a sketch, no labels
* 10-Better than a sketch, some labels, missing components.
* 20-You should pursue a degree in architecture!
* QUALITY of blueprint (10 points each)
  + Ability to function properly if built
  + Design is well thought out
  + Design represents high quality work
  + All labeling is clear

Grading rubric for quality of blueprint

* 2-I’m never getting on this ride! Not functional, lacks thought, low quality.
* 5-Maybe; if I want to put my life at risk. Partially functional, some thought, medium quality work.
* 10-You should be an architect! Fully functional, obviously involves thought and effort, great quality!

Student name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_