Name(s)

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Project Number

J1315

Project Title

There Are No Limits: A Project Testing a Roller Coaster Design Computer Program, No Limits

Abstract

Objectives/Goals

The problem being studied is whether the run time of a computer-designed rollercoaster model, using the software No Limits, can be used to predict the run time of a model rollercoaster through the use of an equation. I believe that the program can be used to predict the run time of the model rollercoaster.

Methods/Materials

Rollercoaster designs were created on No Limits and were used to make models at 1:16.46 scale using vinyl tubing, velcro, carpeting, and a steel ball. Each design, both on the computer and the model, was filmed, then uploaded to iMovie and timed to 1/30 of a second. Then, the three trial times were averaged. The computer average time was divided by the model time to get the equation. The equations were compared.

Results

The equations were not consistent. The smaller track had a larger proportion and the longest tracks had smaller proportions, with the exception of the loop design.

Conclusions/Discussion

My conclusion is that you cannot use the rollercoaster design program to predict the run time of a model rollercoaster. However, further testing using a series of shorter and longer tracks at the same angle of decent is required to determine if there is a pattern in the equations related to the length of track.

Summary Statement

There are No Limits is an experiment to see if a roller coaster design from a computer program, No Limits, can be used to predict the run time of a scale model.

Help Received

Mom helped with finding research on the internet and with understanding how to create charts on Excel. Mom and friend helped with holding the video camera as balls were dropped. Mom helped hold the measuring tape as scale model designs were placed.

Ap2/08