

Situation

Investigate laws of physics, gravity, and momentum to create a roller coaster!



STEM Ahoy! Rollercoaster Run Engineering Design Challenge

Criteria

Design and create a roller coaster track that can carry a marble through a special feature and ending inside a cup!

Constraints

- *Use household items (no legos)
- *Determine which materials to use
- *Work as an engineering family team!

Problem & Career Focus

You and your team of civil engineers, mechanical engineers, and modeling & simulation engineers are tasked with creating the newest roller coaster at Busch Gardens! Your team must research the mathematical designs of roller coasters to create the unique track for guests. Research how engineers use laws of physics to not only ensure a fun ride, but a safe one as well!

Materials

Suggested Items:

- *No Legos!
- *Empty toilet paper rolls
- *Empty paper towel rolls
- *Paper plates
- *Ping pong ball or Marble
- *Cardboard
- *Construction paper
- *Tape
- *Scissors

Investigating Questions

What materials will be used to support the roller coaster track?

How will you design the special feature?

What steps of the engineering design process did you use?

Things to Consider

1. How can you use laws of gravity to make your track faster?
2. How can your track be elevated?

Educational Standards Correlations

Engineering, Science, Physics, Physical Science, Mathematics