

Roller Coaster Videos Questions

Name: _____

Video 1. Nova: Roller Coasters

1. What does Ron Toomer do for a living now that he is no longer a rocket engineer? How many coasters did he create? Why did he not ride his creations?
2. Why does the first hill of a roller coaster have to be higher than all the other hills, twists, and turns?
3. How does Newton's Third Law and centripetal force relate to roller coasters?
4. Why don't roller coasters derail?
5. What is the purpose of wooden roller coaster's classic 'clickety-clack sound'?
6. How are computers used in designing, monitoring and controlling roller coasters?

Video 2. Discovery Channel. Engineering Thrills, Segments 1, 2, and 5.

Segment 1: <https://www.youtube.com/watch?v=dBdj7Lcz2Xc>

Segment 2: <https://www.youtube.com/watch?v=XCHg9Gpo7e4>

Segment 3: <https://www.youtube.com/watch?v=soLcMU0HFZo>

7. What is articulation and why is it important when designing roller coasters?
8. Why do engineers test roller coasters with water dummies instead of sand dummies?
9. What are G-forces?
10. What could happen if you experience 4 G's for more than a few milliseconds?
11. Why do roller coaster engineers need to use data from Brenden Walker's job?
12. Based on the analysis of Brenden's work, were the roller coaster engineers successful?
13. Why does Brenden think the engineers should include music at the end of the ride?
14. Why did engineers decrease the weight of "X" by 20%? What other items did the engineers add to this ride?
15. What is the G-force on the "X2"? This is what a formula one driver experiences each time the driver corners at high speeds.
16. What do roller coasters and psychology have to do with each other?