

Roller Coaster Challenge

Game Play

Roller Coaster Challenge puts the law of conservation of energy on trial of a student's imagination and provokes them to design and build gravity rides that brings people's heart to their mouth. Our coaster geeks play with changes in gravitational potential and kinetic energy and thrive to make the most exciting ride.

In this competition students need to make model of a roller coaster track using the basic hardware material like plastic tubes, metal wire, PVC pipes and many others. A metal ball of appropriate size is taken as a coaster that should run through all the falls, loops and corkscrews in the track. It is recommended to design your roller coaster around a theme like a jungle, an ocean as that adds up to the excitement factor and your chances of winning.

Scoring/Judging Criteria

- **Vertical Drop:** The height difference (measured in centimeters) between the point from where the coaster starts and the point from where the coaster stops.
- **Loop Factor:** The total sum of diameters (measured in centimeters) of all the loops in the roller coaster.
- **Linear Factor:** The total sum of lengths (measured in centimeters) of all the straight paths in the model.
- **Travel Time:** The time (measured in seconds) taken by the coaster to stop after the starting to fall.
- **Total Score:** Vertical drop x Loop factor x Travel Time/ Linear Factor

Rules and Regulation

- **Technical**
 - o The maximum dimension of a roller coaster model can be 150 x 100 x100 cm³ (LxWxH).
 - o The energy source for the ride can be gravitational pull only. Use of external energy sources like magnets, springs, electricity and others are not allowed. However these energy sources can be used for aesthetics and design (like background lightning).
 - o The starting and stopping points must be clearly marked in the model.
 - o The diameter of the coaster ball can be in the range 1-4 cm.
 - o Each must carry the coaster ball for judging during the challenge day. Make sure you have extras in case one gets lost.

- o The minimum distance between loops should be 10 cm.
- o Teams can put up mechanism for bringing the ball back to the start point automatically. However, there are no extra points for it but that could help the team in taking a lead for Best Design Award.
- o Team must notify their requirement for an AC supply prior to the event date.

- **Procedural**
 - o Teams will be provided a display area maximum of size 200x100 cm² (LxB).
 - o Each team will be given a time slot of 15 minutes during which judges will visit to their roller coaster and evaluate their ride based on the mentioned scoring criteria.
 - o Team can take maximum three trials to show a complete ride. At least one complete ride is must to get a score.
 - o Teams must bring their journals showing all the calculations done while designing the roller coaster.

- **Conduct**
 - o Complete team must be available during the judging slot.
 - o Any damage or tampering with the project of other team will lead to disqualification.
 - o Decision and scoring given by judges will be final.