

Innovation Proposal: Roller-Coaster Physics

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Proposed Innovation

Students will build a roller coaster during a three-week intensive experience that builds on physics curriculum. Students will use online simulations, models, books, and documentaries to explore concepts such as momentum, conservation of energy, and the Engineering Design process. Students will build and refine their own roller coaster using digital models.

Purpose and Potential

The goal of this alternative curriculum is to develop physics and engineering skills through hands-on exploration. Students have an experience to think critically while building on natural curiosity to foster understanding of the world around them. Students learn leadership by teaching their skills to middle school students.

Courses Include

a three-week intensive course called Winterim. Students will also travel to participate in Disney's Imagination Campus "Physics of Disney Parks" workshop.

Student Outcomes

will be measured with traditional quizzes and tests for understanding, a poster presentation, functional roller coaster designs, and a research paper.

Funding

Grant funding will be used for tickets to the physics workshop and materials including the text *Coasters 101: An Engineer's Guide to Roller Coasters*.

Under House Bill 386, Local Education Agencies can approve up to \$5,000 in grant funding for innovation programs. The innovation outlined here is one example that has been approved for implementation. Learn more at schools.utah.gov/ulead