

Curricular Activity Template

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Activity Title: Roller Coaster Physics	
Grade Level (s): 8 th grade	Approx. Time: 45-60 mins
Subject Areas: Physics	
Standards: (Please list by number using the following abbreviations: Earth and Space Science (ESS), Life Science (LS), Physical Science (PS), Technology/Engineering (TE), Mathematics (M)) PS13, PS11, TE1.1, TE2.1, TE2.2, TE2.3	

<p>Description of Activity (please limit to 250 words):</p> <p>Students learned about the conversion of energy from gravitational potential energy to kinetic energy, heat, and sound by using foam pipe insulation as a roller coaster track and rolling a marble down it. The foam can be easily reconfigured into different roller coasters. Students were then asked to identify the points of highest gravitational energy and kinetic energy for each roller coaster.</p> <p>We had the students select one successful roller coaster and draw it on paper, and label the aforementioned points. They then wrote down Newton's Laws and how they pertained to roller coasters.</p> <p>The roller coasters made from foam can also be considered to be prototypes, and a discussion about the relationship between designs, prototypes, and final products can follow.</p>
<p>Implementation (classroom organization, presentation, other implementation comments):</p> <p>Students were put in groups of two or three, the teacher went from group to group, and had each student make a different functional rollercoaster from the insulation, and explain how it worked and the points of highest gravitational potential energy and kinetic energy.</p>
<p>Materials (include vendor information if appropriate):</p> <p>Marbles, foam pipe insulation (available at Home Depot)</p>