

Middle School - Energy Roller Coaster

Time: 20 minutes

Overview:

- The Energy Roller Coaster activity is a subset of the full eesmarts Energy Roller Coaster lesson.
- Students view a video of a roller coaster in action and consider potential and kinetic forms of energy.
- Students explore the concept of energy transformation through an activity with a pendulum and they will interpret a graphical display of data collected.

Lesson:

The Energy Roller Coaster is presented via a YouTube video. The link should be provided to students so they can view and follow along with the activities.

- [Energy Roller Coaster Presentation Video](#) (13:10 minutes on YouTube)
 - Optional Assignment:
 - [Back and Forth Student Handout](#)

Extensions:

These are provided to students for more information.

- [Science of Roller Coasters: Understanding Energy](#) by Karen Latchana Kenney on epic! Books (it says it is for 7-9 year olds, but it is definitely more appropriate for older kids)
 - Optional Assignment: Draw a dream roller coaster. Label sections of the roller coaster where potential energy and kinetic energy are greater. Also label the location with the greatest potential energy.
- [NEED Project Info Sheet](#)

Science Standards: Next Generation Science Standards (NGSS):

- The full eesmarts lesson Energy Roller Coaster meets these NGSS Performance Expectations:
 - [MS-PS3-1](#): Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object.
 - [MS-PS3-4](#): Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample.

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