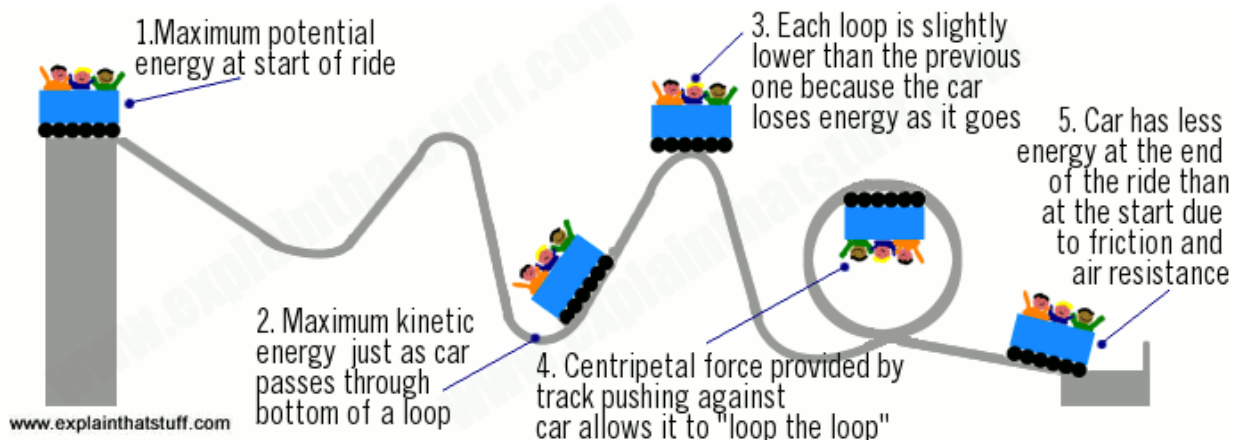


## Potential and Kinetic Energy Lesson Extension: Roller Coasters

### Procedure:

1. The instructor will ask students about their experience with roller coasters.
  - a. What different kinds of roller coasters exist?
  - b. Does roller coaster start fast? How does it gain speed?
  - c. Does the height decrease from start to finish?
2. Instructor will use the PBS Learning Media site to explain Potential and Kinetic Energy as it relates to roller coasters:  
<http://d3tt741pwxqwm0.cloudfront.net/WGBH/conv16/conv16-int-rollercoaster/index.html>
3. Instructor will have students complete the *Potential and Kinetic Energy Worksheet*.
4. Students will explore rollercoaster design using the Funderstanding Roller Coaster Game: <http://www.funderstanding.com/educators/coaster/>
5. Students will have 15 minutes to play with their roller coaster design.
6. Students will show the class their working roller coaster using Smart Board technology.
7. Instructor will ask students how they would improve their roller coaster in terms of potential and kinetic energy.

### Roller Coaster Potential and Kinetic Energy Illustration:

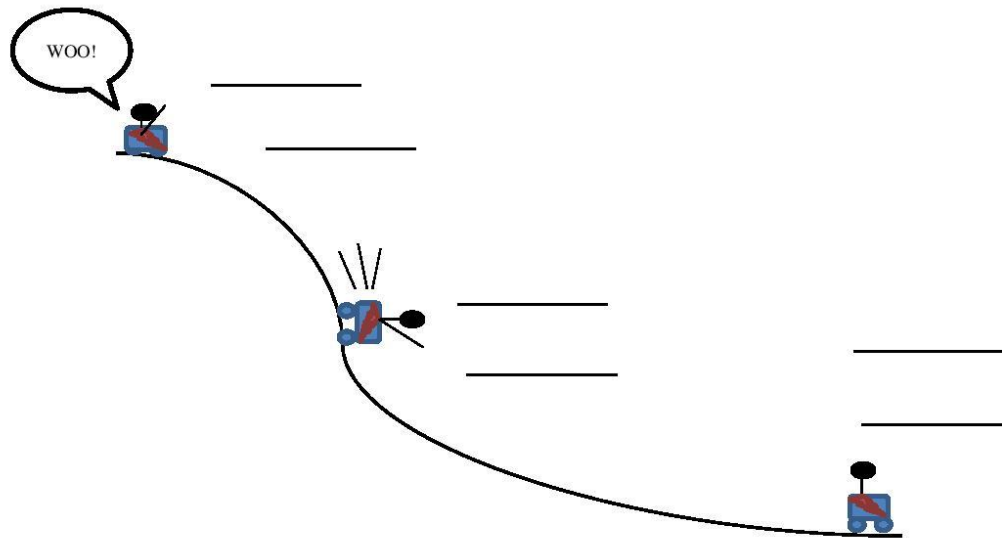


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### Roller Coasters Worksheet

#### Energy Discussion

With your mentor, fill in the blanks below. Does each cart have **High, Medium, or Low Kinetic Energy**? Does each cart have **High, Medium, or Low Potential Energy**?



What is the difference between **SPEED** and **VELOCITY**?

Where does the cart reach the highest velocity?

Build your roller coaster! Discuss with your mentor what would happen if you built your roller coaster from a higher starting height. Experiment and see what happens!