

Name	Class	Date
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Roller Coaster Build

Directions:

1. Use the material provided to create a roller coaster with the maximum number of hills possible where the marble can roll the entire length of the track and into the cup.
2. Use the graph paper to NEATLY draw a diagram of the roller coaster that you built - measure the height of each hill in cm and record it on your diagram.
3. Complete the data table with the height of each hill - CONVERT TO METERS by moving the decimal point 2 places to the left !
4. Calculate the GPE for each hill by **multiplying the mass of the marble by the height of the hill** by gravity- ROUND TO THE NEAREST ONE THOUSANDTH PLACE. You will get a small number.
5. Answer the questions.

Materials:

- 1, 5 g marble
- 2, 6 ft gray tubes
- 1 foot piece of tape
- Calculator
- 1 cup
- Meter stick
- Graph paper
- Instruction and Data Sheet

Data Table

Mass of marble (kg)	Hill (use as many as you need)	Height of hill (m)	Gravity (m/s ²)	GPE of Hill (J) Mass X Height X Gravity Show your work
.005	1		9.8	
.005	2		9.8	
.005	3		9.8	
.005	4		9.8	
.005	5		9.8	
.005	6		9.8	

Questions

1. Did your marble make it to the end of the ramp and into the cup?
2. Where does the potential energy for the marble come from?
3. What is some of the potential energy converted into?