Name_____

Roller Coasters Worksheet

Part A.

Draw and label your successful roller coaster track for the *Introductory Activity.*

Part B.

Draw a detailed diagram and label your final roller coaster track design.

Part B. Final Test   **Marble:**

Trial	A. Initial PE of Marble (J)	B. Time of Ride (s)	C. Total Length of Track (m)	D. Distance from end of track where marble stopped (m)	E. Distance Marble Traveled (C-D, m)	F. Average Speed of Marble (m/s)	Successful Ride?
1							
2							
3							

Post-Lab Questions and Calculations

1. Record your marble choice in the space above the Data Table for Part B.

2. Give an explanation for your marble choice.

3. Calculate the initial potential energy of the marble and record in the Column A of the data table. Show your work.

4. Record the time of the marble ride for each trial in the final test in Column B of the data table.

5. The total length of the track is 12 feet. Determine the total length of the track in meters if 1 ft = 0.305 m. Record the total length in meters in Column C.

6. Record where the marble stopped from the end of the track for each trial in Column D.

7. Calculate the actual distance the marble traveled until it stopped for each trial. Record in Column E.

8. Calculate the average speed of the marble for each trial. Fill in Column F.

9. Most roller coasters move the cars to the top of the first hill using motors and gears run by electric energy. In this activity, what contributed to the marble's initial potential energy?

10. A group of students made a sketch of their roller coaster design (Figure 4). Predict whether or not the marble will make it around the loop without leaving the track and explain your prediction in terms of the marble's energy.
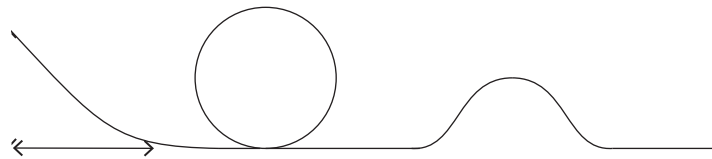

Figure 4.