Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_ **Lab Report** [](http://www.google.com/imgres?start=255&hl=en&sa=X&tbo=d&rls=com.microsoft:en-us:IE-Address&rlz=1I7TSNA_enUS372US372&biw=1366&bih=643&tbm=isch&tbnid=IjUyafhDtJBdjM:&imgrefurl=http://turuturuschoolroom2.blogspot.com/2012/06/roller-coaster-ride-discriptive-writing.html&docid=CFcy0-GnRRCfMM&imgurl=http://4.bp.blogspot.com/-wH0qeIBGo8M/T9Fd3R--WII/AAAAAAAACLw/iOtWrwoX_sc/s1600/rollercoaster.jpg&w=720&h=306&ei=zM68UJ_uF-qP0QG7t4CwAg&zoom=1&iact=hc&vpx=391&vpy=147&dur=322&hovh=146&hovw=345&tx=143&ty=73&sig=107893627258077206511&page=10&tbnh=122&tbnw=270&ndsp=28&ved=1t:429,r:64,s:200,i:196)

Part A

1. Why is the ball started by removing the pencil and not just dropping the ball? \_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Record the data from your trials below.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Height of the incline (cm)** | **Distance Ball Traveled (cm)**  **Trial 1 Trial 2 Trial 3 Trial 3** | | | | **Average distance ball traveled (cm)** |
| Incline 1 |  |  |  |  |  |  |
| Incline 2 |  |  |  |  |  |  |
| Incline 3 |  |  |  |  |  |  |
| Incline 4 |  |  |  |  |  |  |

1. List the factors that affected how far the ball rolled. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Explain the relationship between stopping point of the ball and the release height of the ball.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Does doubling the height of the incline make the marble travel twice as far? \_\_\_\_\_\_\_\_\_\_\_\_\_
2. Explain the changes you observed in potential and kinetic energy\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Part B**

1. How far is your chosen spot from the wall? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What is the height of your incline? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

9. What is the difference in your prediction and the place where the ball stopped? \_\_\_\_\_\_\_\_\_\_\_\_

**Part C**

1. What is the relationship between the initial hill and the second hill on the track? Does the initial

hill need to be higher, lower or equal height compared to the second hill? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Draw your set up for the initial hill with two smaller ones in the space below. Record the heights of the hills and the distances between them.
2. How did the stopping distance of the ball vary each time the track changed?\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. What does Conservation of Energy mean using the roller coaster as an example? \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Draw your roller coaster with a loop. Record the heights of the hills and the distances between them.
3. Write a summary about the kinetic and potential energy in your roller coaster. \_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Based on activity “*Homemade Roller Coaster”* from Exploring Energy with Toys , Beverly A.P. Taylor.