**Coaster Testing Document
(revised 9/5/18)**

**Engineering team member names:**

**Challenge: To create the maximum thrill ride that is a safety approved roller coaster using the** [**Design a Roller Coaster**](https://www.learner.org/exhibits/parkphysics/coaster/) **web site.**

**Bonus questions:**

* **1. Which is longer, a meter or a foot? (a meter stick or a 12 inch ruler?)**
* **2. How many inches are = 1 meter?**

**Part 1**

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| **Directions: First document and carry out three trials, before completing Parts 2 and 3** | **Trial 1** | **Trial 2** | **Trial 3** |
| **1. Height of the first hill (80 m, 60 m, 40 m)** |  |  |  |
| **2. The shape of the hill (slope, angled slope, obtuse slope)****Explain why you chose this shape and not the others:** |  |  |  |
| **3. The height of the 2nd hill (70 m, 50 m, or 30 m)****Explain, using science vocabulary words, why it can’t be 80 m like the beginning:** |  |  |  |
| **4. Which loop is your choice (perfect circle, eliptical loop, no loop)****Explain how the shape determines the safety:** |  |  |  |
|  |  |  |  |
| **5. Run it and indicate your safety ratings of each trial: (thumbs up or down)** |  |  |  |
| **6. The Fun rating: (thumbs up or down)** |  |  |  |
| **7. What suggestions were made in the safety inspection:** |  |  |  |

**Part 2 Evaluation:**

**From your 3 trials, write in full sentences what you learned about:**

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| 1. **What difference does the height of the first hill make:**

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| **2. Why you chose the shape of the first hill:** |
| **3. What difference in potential and/or kinetic energy does the exit path make:** |
| **4. Why did you choose the height of the second hill:** |
| **5. What difference did the different loops make? What happened?:** |

**Part 3: If you were asked to coach another team, what advice would you give without giving them an answer.**

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| 1. **When planning the Height of the first hill think about:**
 |  |
| **2. What word would you use to help them think about the following (Potential or Kinetic energy):*** **the second hill**
* **the Exit path:**
 |  |
| **3. What they should think about to make sure their coaster gets to the top of the second hill:** |  |
| **4. What should they think about when planning the shape of the loops:**  |  |
| **5. Safety rating tips:** |  |
| **6. Fun rating tips:** |  |

**Part 4. Take a screenshot of your final design and paste it below.**

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