***Roller Coaster Design Score Sheet***

**Coaster Name:**

**Team Members:**

|  |  |  |  |
| --- | --- | --- | --- |
|  | | | |
| ***CHALLENGE*** | ***JUDGING CRITERIA*** | ***JUDGE’S COMMENTS*** | ***SCORING*** |
| **Height** | ***REQUIREMENTS***  ***CRITERIA***   * Highest hill * 2nd highest hill * Tallest drop * Longest drop |  | **1 - 10** |
| **Speed** | ***REQUIREMENTS***  - Marble shall be able to complete entire track after initial drop  ***CRITERIA***  - Average Speed  - Speed at end |  | **1 - 10** |
| **Creativity** | ***REQUIREMENTS***  Marble must stay within track design (except for jumps)  ***CRITERIA***  - # inversions |  | **1 - 10** |
|  | | | |

***Roller Coaster Worksheet***

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| --- | --- | --- | --- |
|  | CALCULATIONS | |  |
| **Marble Mass** | **m =** |
| **Highest Hill** | **h =** |
| **Total Potential Energy**  *(g* = 9.8 m/s2 = 32.2 ft/s2) | **PE = mgh =** |
| **Time Trial**  (Average of 3 time trials – time it takes marble to complete entire track) | **tavg =** |
| **Distance** | **D =** |
| **Average Speed** | **vavg = D/t =** |
| **Average Kinetic Energy** | **KE = ½ mv2 =** |
| **Energy Lost** | **PE – KE =** |
| **Final Speed** | **vf =** |
|  | |