



## STEM Scavenger Hunt: High School

### Graph Analysis

Use graph of *Iron Rattler* to answer these questions. Match the locations on the graph (letters) to the descriptions (numbers). Letters may be used more than once or not at all.

- |                         |  |
|-------------------------|--|
| ___ 1. Lift Hill        | ___ 2. Maximum Potential Energy          |
| ___ 3. Maximum velocity | ___ 4. Maximum Kinetic Energy            |
| ___ 5. Zero g roll      | ___ 6. Maximum vertical (X) acceleration |

Use graph of *Superman* to answer these questions. Match the locations on the graph (letters) to the descriptions (numbers). Letters may be used more than once or not at all.

- |   |                               |
|---|-------------------------------|
| ___ 1. Maximum Potential Energy               | ___ 2. Maximum Kinetic Energy |
| ___ 3. Bottom of loop                         | ___ 4. Top of loop            |
| ___ 5. Maximum vertical (X) acceleration      |                               |
| ___ 6. Centripetal force is directed downward |                               |
| ___ 7. Feeling almost weightless              |                               |
| ___ 8. 1 "g"                                  |                               |

Use graph of *Poltergeist* to answer this question. The *Poltergeist* is different from the rest of the coasters. A student, without even seeing the start of the ride, concludes that the train must be catapulted out of the station at great speed. Why?

One thing that is different about the *Batman* ride is that the cars spin as well as run on the track. Watch the ride and observe the structure of the track and the cars. Is the spinning of the cars completely random or is there some pattern? Does something cause it? Look at the ride carefully. Explain your reasoning.