



1. Why is the first hill of the American Eagle the highest?
2. Why isn't the operator of the American Eagle concerned about the mass of the passengers?
3. Describe the sensations you experience while riding over and down the "hills." At which point(s) do you experience a sensation of weightlessness.
4. Why do the heights of successive "hills" decrease as you move from the beginning to the end of the ride?
5. When do you think you have the greatest speed during the ride?
6. When is your speed the least during the entire ride (not including being at rest at the start and finish)?
7. List the forms of energy that are utilized by the American Eagle.
8. Why is a roller coaster, such as the American Eagle, like a simple pendulum?
9. Use the diagram above and record the following:

<input type="checkbox"/> Maximum speed	<input type="checkbox"/> Maximum kinetic energy
<input type="checkbox"/> Minimum speed	<input type="checkbox"/> Minimum kinetic energy
<input type="checkbox"/> Maximum potential energy	<input type="checkbox"/> Weightless sensation
<input type="checkbox"/> Minimum potential energy	<input type="checkbox"/> Heavy sensation



10. Use the diagram above and record the following:

- | | |
|---|---|
| <input type="checkbox"/> Maximum speed | <input type="checkbox"/> Maximum kinetic energy |
| <input type="checkbox"/> Minimum speed | <input type="checkbox"/> Minimum kinetic energy |
| <input type="checkbox"/> Maximum potential energy | <input type="checkbox"/> Weightless sensation |
| <input type="checkbox"/> Minimum potential energy | <input type="checkbox"/> Heavy sensation |

11. Some roller coaster enthusiasts claim the first roller coaster car offers the most thrilling ride; others insist that the last car provides the biggest thrills. Discuss the merits and disadvantages of both positions. Be sure to explain your answers thoroughly based on the physics involved.
12. Describe where the American Eagle's track is banked. Explain the purpose of banking roller coaster track.
13. List as many safety features as you can that are used in the American Eagle.