Roller Coaster Lab

Web Site: <http://www.fearofphysics.com/Roller/roller.html>

[How to make a Roller Coaster Work](http://www.fearofphysics.com/Roller/roller.html)

Then when the page appears, follow the directions and answer the questions for each section.

**Section 1: Track #1**

1. Choose your starting point (A,B,C,D,E) and put the letter choice on the line \_\_\_A\_\_\_\_\_\_\_.

2. Did your car make it to the end? \_\_Yes\_\_\_\_\_\_\_\_\_

3. What information is given about the potential energy of this roller coaster? PotentialEnergy. This is the energy a roller coaster has because it is a certain height from the ground. The higher a roller coaster is, the more potential energy it has. The closer to the ground, the less potential energy it has. For a roller coaster, potential energy is sort of like its gasoline. The more it has, the more it can travel. The less it has, the less it can travel.

4. Choose another starting point (A,B,C,D,E) and put the letter choice on the line \_\_B\_\_\_\_\_.

5. Did your car make it to the end? \_\_Yes\_\_\_\_\_\_\_\_\_

6. What information is given about the kinetic energy of this roller coaster? Kinetic Energy. This is the energy of speed. The faster a roller coaster is going, the more kinetic energy it has. The slower it's going, the less kinetic energy it has.

7. Choose another starting point (A,B,C,D,E) and put the letter choice on the line\_\_C\_\_\_\_\_\_.

8. Did your car make it to the end? \_\_\_Yes\_\_\_\_\_\_\_\_

9. What is the key to making a roller coaster work? Here's the key to making any roller coaster work. The highest point a roller coaster achieves at any time during the ride sets the maximum energy (like gasoline) the coaster can possibly have. It will never go higher than this point. Keep this in mind when you choose the starting point for your roller coaster. The starting point must be as high or higher than any hill or loop in the track.

**Section 2: Track #2**

1. Choose another starting point (A,B,C,D,E) and put the letter choice on the line A\_\_\_\_\_\_\_.

2. Did your car make it to the end? \_\_\_Yes\_\_\_\_\_\_\_\_

3. Why do you think your car did or did not make it to the end?

4. Choose another starting point (A,B,C,D,E) and put the letter choice on the line \_B\_\_\_\_\_\_.

5. Did your car make it to the end? \_\_No\_\_\_\_\_\_\_\_\_

6. The page gives information about kinetic and potential energy fighting with each other. What do they mean? They mean Kinetic and Potential energy sort of fight with each other as a roller coaster moves. As it rolls downhill, it loses potential energy because it's getting closer to the ground, but gains kinetic energy because it begins to move faster. Conversely, as it rolls uphill, it gains potential energy (because it's getting higher), but loses kinetic energy because it begins to move slower and slower.

7. Choose another starting point (A,B,C,D,E) and put the letter choice on the line \_\_E\_\_\_\_\_.

8. Did your car make it to the end? \_\_No\_\_\_\_\_\_\_\_\_

**Section 3: Track #3**

1. Choose another starting point (A,B,C,D,E) and put the letter choice on the line \_\_A\_\_\_\_\_.

2. Did your car make it to the end? \_\_\_Yes\_\_\_\_\_\_\_\_

3. Why do you think your car did or did not make it to the end? I think my car made it to the end because it is going down a long ramp and it is at a high starting point.

4. Choose another starting point (A,B,C,D,E) and put the letter choice on the line \_\_\_B\_\_\_\_.

5. Did your car make it to the end? \_\_No\_\_\_\_\_\_\_\_\_

6. Choose another starting point (A,B,C,D,E) and put the letter choice on the line \_\_D\_\_\_\_\_.

7. Did your car make it to the end? \_\_No\_\_\_\_\_\_\_\_\_