

Name:                      Date: February 7, 2013

**Directions:** This activity is designed to introduce your group to the basic concepts related to roller coaster design and function. The information that you get from this article will be beneficial as you research your coaster cars and restraint systems. Use the hyperlink below to load the website you will need for this activity.

<http://science.howstuffworks.com/engineering/structural/roller-coaster3.htm>

1). What is the concept of **Potential Energy** (energy of position)?

2). What is **Kinetic Energy**?

3). Use the example provided in the article of how riding a bike up and down a hill demonstrates the concepts of both **Potential** and **Kinetic Energy**. Watch the animation on the page to observe how these forms of energy work on a roller-coaster.

4). At a most basic level, what is a roller coaster?

5). As we all know, gravity is the force of earth pulling down on us no matter where we are. According to the article, we don't actually notice the downward force on our bodies, we notice something else. How does the article say gravity actually affects our bodies? What is this called?

6). When do we feel the force of **Acceleration** on our bodies on a roller-coaster?

7). What is Newton's First Law?

8). When do you feel a sensation of weightlessness on a roller coaster?

9). What causes the sensation of air time on a roller coaster?

10). While on a roller coaster, your body can only feel the force of **Acceleration** or the change in velocity, not velocity itself. How does your body know that it is going fast?

