



## **Lesson Plan: Understanding the Physics of the Giant Swing**

**Objective:** Students will understand the basic principles of potential and kinetic energy and how they relate to the function of the giant swing at High Gravity Adventures.

### **Materials:**

- Video or pictures of the three-person giant swing at High Gravity Adventures
- Small toy swings or pendulums
- Weights or toy figures
- Graph paper or digital graphing tools
- Stopwatch

### **Activities:**

#### **1. Introduction:**

- a. Begin by showing students a video or pictures of the three-person giant swing.
- b. Ask students to make observations about the swing's motion and how it might work.

#### **2. Discussion:**

- a. Discuss the concepts of potential and kinetic energy.
- b. Explain that it has maximum potential energy when the swing is pulled back and held at its highest point.
- c. As the swing is released and moves to its lowest point, potential energy is converted into kinetic energy.

#### **3. Experiment:**

- a. Have students use the toy swings or pendulums and weights/toy figures.
- b. Ask students to pull back the swing and release, observing the motion.
- c. Use a stopwatch to time how long it takes for the swing to come to a rest.
- d. Repeat the experiment, but let students push the swing to give it more energy. Compare the times.

#### **4. Graphing Activity:**

- a. Have students plot the swing's potential energy and kinetic energy on a graph.
- b. As the swing is released and moves downward, the potential energy decreases, and kinetic energy increases.
- c. At the bottom of the swing, kinetic energy is at its maximum, and potential energy is at its minimum.

#### **5. Conclusion:**

- a. Discuss the observations from the experiments.
- b. How does the giant swing at High Gravity Adventures demonstrate the conversion of potential and kinetic energy?
- c. Discuss real-world applications of these principles.