



### **Lesson Plan: Engineering and Safety of the Giant Swing**

**Objective:** Students will understand the importance of engineering and safety in designing recreational activities like the giant swing at High Gravity Adventures.

#### **Materials:**

- Video or pictures of the three-person giant swing, focusing on the structure and safety harnesses.
- Various materials like straws, rubber bands, cardboard, etc.
- Toy figures (to represent people on the swing)
- Scale or balance
- Safety guidelines (can be fictional for the activity, but grounded in real safety considerations)

#### **Activities:**

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

- Show students the video or pictures, focusing on the structural and safety aspects of the swing.
- Discuss how engineering is essential for the safety and functionality of such attractions.

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

- Talk about the importance of material selection in engineering. Why might certain materials be chosen for the swing over others?
- Discuss the concept of load-bearing and how engineers must calculate the maximum weight the swing can safely hold.

##### **3. Design Challenge:**

- Using the provided materials, challenge students to design their own "safe" giant swing.
- They must ensure that their design can safely hold the toy figures using the materials.
- Once designs are complete, they can test their swings using toy figures and scales or balances to simulate different weights.
- Encourage students to refine their designs based on their observations.

##### **4. Safety Guidelines:**

- Discuss real-world safety considerations for amusement attractions.
- Give students a set of fictional safety guidelines. Based on these guidelines, they should assess their designs and suggest improvements or modifications.
- Discuss the importance of regular inspections and maintenance in real-world attractions.

**5. Conclusion:**

- Emphasize the importance of engineering in ensuring safety in recreational activities.
- Discuss potential careers in this field and how STEM education is essential for such professions.