***Let’s Build a Roller Coaster! Project***

**Amusement Park Physics: What are the forces behind the fun?**

*Read the overview. Next, click on and define the following terms in your own words.*

Gravity-

Potential Energy –

Kinetic Energy –

Velocity –

G-forces –

Weightlessness –

**Roller Coaster Physics**

*Take notes on…*

Free fall –

Projectile Motion –

Acceleration –

Centripetal Acceleration –

Centrifugal Force –

Acceleration Stress –

Friction –

Guiding Question: Why do you think the station is located where it is?

**Amusement Park Physics**

*Get ready to take notes about what you think is important. Listen to the robot tell you about roller coaster, then click on the roller coaster sign. Listen to the robot again and enter the roller coaster builder. If you need to go back to what he already said. Click the orange back arrow button. When he is done, click start and select your roller coaster parts.*

**Record Trial 1 here:**

Height of your first hill:

Shape of your first hill:

Exit Path:

Height of Second Hill:

Loop:

**Trial 1 Safety Inspection:**

Step 1 Observations:

Step 2 Observations:

Step 3 Observations:

Step 4 Observations:

Step 5 Observations:

***Click Design Another Coaster (start over and experiment again)***

*Record your observations the same way and write your selections and observations the same way you did the first time.*

**Record Trial 2 here:**

Height of your first hill:

Shape of your first hill:

Exit Path:

Height of Second Hill:

Loop:

**Trial 2 Safety Inspection:**

Step 1 Observations:

Step 2 Observations:

Step 3 Observations:

Step 4 Observations:

Step 5 Observations:

***Click Design Another Coaster***

**Record Trial 3 here:**

Height of your first hill:

Shape of your first hill:

Exit Path:

Height of Second Hill:

Loop:

**Trial 3 Safety Inspection:**

Step 1 Observations:

Step 2 Observations:

Step 3 Observations:

Step 4 Observations:

Step 5 Observations:

Continue building coasters and recording your trials until your find one that works. When you do, move on to the game.

**Roller Coaster Game**

**Play the game and record your observation as you build and rebuild experimental coasters.**

Trial 1 Observations:

Trial 2 Observations:

Trial 3 Observations: