Freewheeling

Name(s): _____ **Date:** _____

NGSS GOALS	 BRONZE	 SILVER	 GOLD	 PLATINUM
1. Student work related to this Crosscutting Concept: In this project, we tested what would change the motion of our car at the most — weight, wheel size, or steepness of the hill.				
Stability and Change: Explanations of stability and change in designed systems can be constructed by examining the forces at different scales..	• We predicted and measured how weight would affect the distance our car traveled. ☐	• We met Bronze. • We predicted and measured how wheel size would affect the distance our car traveled. ☐	• We met Silver. • We predicted and measured how the steepness of our hill affected distance our car traveled. ☐	• We met Gold. • We proposed a new experiment to explore other forces that affect the distance our car travels. ☐
2. Student work related to this Practice: In this project, we wrote a summary about what happened the motion of our car when we made the hill steeper.				
Analyzing and Interpreting Data: Identify independent and dependent variables and controls, how measurements will be recorded, and how many data are needed to support a claim.	• We identified which was the independent and which was the dependent variable when we did the hill steepness experiment. ☐	• We met Bronze. • We identified what parts of our experiment we needed to keep constant (i.e. as 'controls') for each trial we did. • We explained what we found out about the motion of our car when the hill got steeper. ☐	• We met Silver • We collected data for at least three trials for every variable we tested. • We used our data to support the ideas we described in our summary. ☐	• We met Gold • We proposed additional experiments to help us better answer our questions and understand more about how steepness affects our car's motion. ☐
3. Student work related to this Practice: In this project, we drew our favorite freewheeler design and explained how some parts of our car worked.				
Constructing Explanations: Apply scientific ideas or principles to design an object, tool, process or system.	• We drew our freewheeler. • We used the word 'force' in our explanation. ☐	• We met Bronze. • We used the word 'mass' or 'weight' when describing how parts of our car worked. ☐	• We met Silver. • We used the word 'friction' when describing how parts of our car worked. ☐	• We met Gold. • We connected at least two of these scientific terms to show how these ideas relate to each other and to our car. ☐
Notes:				