






Gear Racer

Name(s): _____

Date: _____

 NGSS GOALS	 BRONZE	 SILVER	 GOLD	 PLATINUM
1. Student work related to this Crosscutting Concept: In this project, we tested at least two different gear ratios to explore how a change in gears affects the speed of the car.				
Stability and Change: Students observe that changes in one part of a system might cause large changes in another.	<ul style="list-style-type: none"> We tested our gear racer using gear setting A. We observed three different gear pairs between the motor and the wheel axle. <input type="checkbox"/>	<ul style="list-style-type: none"> We met Bronze. We tested our gear racer using gear setting B. We completed our measurements and calculations on our student worksheet. <input type="checkbox"/>	<ul style="list-style-type: none"> We met Silver. We identified which change in our gear system caused a change in our gear racer's speed. <input type="checkbox"/>	<ul style="list-style-type: none"> We met Gold. We used our observations from this experiment to propose new gear redesign ideas. We predicted the changes our proposed redesign would create. <input type="checkbox"/>
2. Student work related to this Practice: In this project, we considered multiple redesign ideas before deciding on our final solution.				
Engaging in Argument from Evidence: Evaluate competing design solutions based on jointly developed and agreed-upon design criteria.	<ul style="list-style-type: none"> We discussed as a group all of the redesign questions provided to us on our student worksheet. We came up with one possible solution. <input type="checkbox"/>	<ul style="list-style-type: none"> We met Bronze. We discussed and agreed upon our redesign goal. We discussed at least two solutions to meet our design goal. We tested two solutions. <input type="checkbox"/>	<ul style="list-style-type: none"> We met Silver. We created a measurable goal (a turn angle, a speed, a slope angle, etc.) We tested our solutions. We used evidence from our tests in a discussion about which solution was the best. <input type="checkbox"/>	<ul style="list-style-type: none"> We met Gold. We concluded our discussion and picked the best design solution to meet our measurable goals. <input type="checkbox"/>
3. Student work related to this Practice: In this project, we redesigned our gear racer. We communicated our redesign focus and the test results that evaluated the new design's performance.				
Obtaining, Evaluating, and Communicating Information: Communicate scientific and/or technical information about a proposed object in writing and/or through oral presentation.	<ul style="list-style-type: none"> We documented our redesign process with an outline that included our redesign focus, our ideas, and our test results. <input type="checkbox"/>	<ul style="list-style-type: none"> We met Bronze. We added sketches to our outline(or digital photos / videos). We added a data table to organize our test results. <input type="checkbox"/>	<ul style="list-style-type: none"> We met Silver. We added a clear conclusion. We added more descriptive notes to our document or presentation. We rehearsed our presentation. <input type="checkbox"/>	<ul style="list-style-type: none"> We met Gold. We included a rough draft of our outline. We improved our work based on input from others. We shared our final document or presentation. <input type="checkbox"/>
Notes:				